

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA

Before The Honorable James Donato, Judge

ERICA FRASCO, et al.,)	
individually and on behalf of)	
all others similarly situated,)	
)	
Plaintiffs,)	
)	
VS.)	NO. 3:21-CV-00757 JD
)	
FLO HEALTH, INC., META)	
PLATFORMS, INC.,)	
)	
Defendants.)	
_____)	

San Francisco, California
Wednesday, July 30, 2025

TRANSCRIPT OF PROCEEDINGS

APPEARANCES:

For Plaintiffs:

LOWEY DANNENBERG, P.C.
44 South Broadway, Suite 1100
White Plains, New York 10601

BY: CHRISTIAN LEVIS, ATTORNEY AT LAW
AMANDA FIORILLA, ATTORNEY AT LAW

SPECTOR ROSEMAN & KODROFF, P.C.
Two Commerce Square
2001 Market Street, Suite 3420
Philadelphia, Pennsylvania 19103

BY: DIANA J. ZINSER, ATTORNEY AT LAW

(APPEARANCES CONTINUED ON FOLLOWING PAGE)

Reported by: Ruth Levine Ekhaus, RDR, RMR, FCRR, CCG
CSR No. 12219, Official United States Reporter

APPEARANCES: (CONTINUED)

For Plaintiff:

LABATON KELLER SUCHAROW LLP
140 Broadway
New York, New York 10005

BY: **CAROL C. VILLEGAS, ATTORNEY AT LAW**
MICHAEL P. CANTY, ATTORNEY AT LAW
GLORIA J. MEDINA, ATTORNEY AT LAW

For Defendant Flo Health, Inc.:

DECHERT LLP
US Bank Tower
633 West 5th Street, Suite 4900
Los Angeles, California 90071-2032
BY: **BENJAMIN M. SADUN, ATTORNEY AT LAW**
ALLISON OZUROVICH, ATTORNEY AT LAW

DECHERT LLP
Cira Centre
2929 Arch Street
Philadelphia, Pennsylvania 19104-2808
BY: **THEODORE E. YALE, ATTORNEY AT LAW**
CLARE P. POZOS, ATTORNEY AT LAW

DECHERT, LLP
One International Place
100 Oliver Street
Boston, Massachusetts 02210
BY: **BRENDA R. SHARTON, ATTORNEY AT LAW**

For Defendant Meta Platforms, Inc.:

LATHAM & WATKINS
555 Eleventh Street, NW, Suite 1000
Washington, D.C. 20004

BY: **ANDREW B. CLUBOK, ATTORNEY AT LAW**

LATHAM & WATKINS LLP
650 Town Center Drive, 20th Floor
Costa Mesa, California 92626

BY: **MICHELE D. JOHNSON, ATTORNEY AT LAW**

LATHAM & WATKINS LLP
505 Montgomery Street, Suite 2000
San Francisco, California 94111

BY: **MELANIE M. BLUNSCHI, ATTORNEY AT LAW**

(APPEARANCES CONTINUED ON FOLLOWING PAGE)

APPEARANCES: (CONTINUED)

GIBSON, DUNN & CRUTCHER LLP
One Embarcadero Center, Suite 2600
San Francisco, California 94111-3715

BY: **ELIZABETH K. McCLOSKEY, ATTORNEY AT LAW**
ABIGAIL A. BARRERA, ATTORNEY AT LAW

Also Present: Anjali Dahiya

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Wednesday - July 30, 2025

9:14 a.m.

P R O C E E D I N G S

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(Proceedings were heard out of the presence of the jury.)

THE COURTROOM DEPUTY: All rise. This Court is now in session. The Honorable James Donato presiding.

THE COURT: Good morning.

ALL: Good morning, Your Honor.

THE COURT: Everybody is refreshed.

THE COURTROOM DEPUTY: Please be seated. Calling Civil 21-757, Frasco versus Flo Health.

Counsel?

MR. CANTY: Taking appearances?

Your Honor, Michael Canty on behalf of the plaintiffs. Good morning.

MS. VILLEGAS: Good morning, Your Honor. Carol Villegas on behalf of the plaintiffs.

MS. ZINSER: Good morning, Your Honor. Diana Zinser on behalf of plaintiffs.

MS. FIORILLA: Good morning, Your Honor. Amanda Fiorilla on behalf of plaintiffs.

MR. LEVIS: Good morning, Your Honor. Christian Levis of behalf of plaintiffs.

MS. MEDINA: Good morning, Your Honor. Gloria Medina on behalf of the plaintiffs.

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1 **MS. SHARTON:** Good morning. Brenda Sharton on behalf
2 of Flo Health.

3 **THE COURT:** One second.

4 **MR. SADUN:** Good morning, Your Honor. Benjamin Sadun
5 for defendant Flo Health.

6 **MS. POZOS:** Clare Pozos on behalf of Flo Health.

7 **MS. OZUROVICH:** Good morning. Allison Ozurovich on
8 behalf of Flo Health.

9 **MS. JOHNSON:** Good morning, Your Honor. Michele
10 Johnson, Latham & Watkins, on behalf of Meta.

11 **MR. CLUBOK:** Good morning, Your Honor. Andrew Clubok,
12 also Latham, on behalf of Meta.

13 **MS. BLUNSCHI:** Good morning, Your Honor. Melanie
14 Blunschi from Latham on behalf of Meta.

15 **MS. McCLOSKEY:** Good morning, Your Honor. Elizabeth
16 McCloskey on behalf of Meta.

17 **THE COURT:** Okay. Plaintiff, are you planning to rest
18 today?

19 **MR. CANTY:** Your Honor, that's our hope, depending on
20 how long crosses go.

21 We have Mr. Satterfield to finish up. We intend to call
22 Mr. Wooldridge and Dr. Jen Golbeck, and then rest.

23 **THE COURT:** Okay. All right. Somebody wanted to ask
24 me something.

25 **MS. SHARTON:** Yes, Your Honor. Thank you.

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1 We just had one threshold witness matter that we'd like to
2 resolve because it will affect the rest of the day's witnesses
3 for Flo.

4 Plaintiffs told us last night that they intend to move to
5 exclude our expert witness, Lorin Hitt, who you may recall
6 Professor Hitt was touching down in San Francisco about the
7 time they told us this. This is his second trip out to testify
8 because he came last week and then we didn't get to him. But
9 we had disclosed him last Tuesday and his exhibits and slides,
10 heard nothing from plaintiffs. He flew in. We didn't get to
11 him. He went back to Philadelphia, flew in yesterday. We
12 disclosed him again on Monday, heard nothing 'til last night.

13 So he's arrived for the second time, and as you'll recall,
14 I think, this is the third bite at maybe a *Daubert*. On
15 May 15th you definitively ruled and said the motion to exclude
16 witness Hitt is again denied. Hitt's report relies on
17 extensive evidence and explains the bases of his conclusions --

18 **THE COURT:** Well, you're asking me -- haven't made a
19 motion yet and you're launching into a defense.

20 **MS. SHARTON:** Okay. Fair enough.

21 **THE COURT:** Why don't we hear from the plaintiff
22 first, and then I can take up your point.

23 So what are you planning to do?

24 **MR. LEVIS:** I appreciate Professor Hitt's travel
25 schedule.

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1 The issue -- which we just received an updated slide
2 presentation this morning and why we believe a motion is
3 necessary is that defendants plan to offer Professor Hitt not
4 to testify about anything related to an economic analysis that
5 they represented at the pretrial conference. They intend to
6 use him as an expert on notice.

7 The slide deck that they have, intends to offer testimony
8 saying that Facebook -- Flo app users did not react negatively
9 to learning about the Flo app's use of the Facebook SDK.
10 There's no scientific basis or methodology in Professor Hitt's
11 report or anywhere else that supports that conclusion. There's
12 actually no evidence in the record that anyone saw these
13 articles.

14 We also learned from their disclosure that they intend to
15 have him testify about 62 separate articles that they believe
16 came out around the same time, again, with no evidence, no
17 methodology, no survey that would support any indication that
18 plaintiffs or class members saw it. That's junk science that
19 needs to be excluded, and that's why we intend to move to
20 exclude --

21 **THE COURT:** Well, I wouldn't say it's junk science,
22 but it's certainly not expert testimony. An ordinary jury can
23 understand that without being spoon-fed by an expert.

24 But why don't we just wait. You can object when he's
25 asked questions.

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1 **MR. LEVIS:** I think the concern we have about going
2 that far is that the highly prejudicial nature of this type of
3 testimony, even suggesting that people saw articles when
4 there's nothing in the record that they did, no plaintiffs were
5 questioned about these articles, and they were never produced
6 in discovery, is something we can't undo if Professor Hitt
7 starts to testify about it. That's why --

8 **THE COURT:** Stand up and object and I stop it. What
9 do you think is going to happen?

10 **MR. LEVIS:** Well, our concern is that they're going to
11 just lob this out there and then get the comment out there and
12 there's nothing we can do about it.

13 I really would not ask to file a motion if I did not think
14 it was this important and serious. That's our serious concern.

15 He's also --

16 **THE COURT:** Well, why don't we -- I'm very skeptical
17 that he's allowed to testify on any of these notice issues.
18 That's not expert testimony.

19 This reminds me -- I had a case -- I want to bring the
20 jury in so I don't want to tell you my story.

21 This is not expert testimony.

22 **MR. LEVIS:** He's also -- if I may resume that issue --
23 he's offering as well as a second opinion on the subjective
24 expectation of value of privacy. This is what Your Honor
25 excluded with defendants' expert, Molly Miller, previously, and

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1 they're just trying to get that same testimony in through this
2 witness now. That should be excluded as well.

3 **MS. SHARTON:** Your Honor --

4 **THE COURT:** Whatever I said earlier still goes.

5 **MS. SHARTON:** Can I have one minute, just to address
6 the notice?

7 The newspaper -- nothing has changed. I wish we were that
8 nimble. Nothing has changed. He's going to testify about
9 charts that were in his report. Nothing to do with notice.
10 It's the newspaper articles -- this is an endowed chair at
11 Wharton, so it's hardly junk science, but it goes straight to
12 harm. He's going to testify about statistical empirical
13 evidence regarding the millions of women --

14 **THE COURT:** He can't say there are 62 articles that
15 plaintiffs should have read. That's not expert testimony.

16 **MS. SHARTON:** He's not going to testify to that --

17 **THE COURT:** He can't do any of that. And he certainly
18 can't summarize any articles. He can't talk about there was
19 adequate notice. That's not expert testimony.

20 **MS. SHARTON:** He's not going to testify to any of
21 that. He's going to say he looked at the user base before --
22 all it says is what we've said so far, like the bombshell news.
23 Nothing about the -- we're not going to use any --

24 **THE COURT:** Why would he talk about any of that?

25 **MS. SHARTON:** Because it's in his report. It goes to

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1 harm, which is --

2 **THE COURT:** You know, there's a lot in his report
3 that's not coming in.

4 **MS. SHARTON:** Yes, I understand that.

5 **THE COURT:** So just saying it's in his report doesn't
6 answer the question. Why is he going to -- I thought he was
7 here for economic issues.

8 **MS. SHARTON:** He is. It goes to the harm that the --
9 if you saw no change in the user base before or after, what
10 harm is there. And that goes to three or -- three of the four
11 claims against Flo: Breach of contract, invasion of privacy,
12 and he -- Serge Egelman himself opened the door to this
13 testimony.

14 **THE COURT:** Harm to whom? Harm to the users?

15 **MS. SHARTON:** To the millions of women in the class
16 or -- well, millions of users in the class. He's going to
17 testify just on economic harm. These are, you know, squarely
18 right in the middle of an economist's opinion.

19 **THE COURT:** What does the Wall Street Journal article
20 have to do with that?

21 **MS. SHARTON:** The way he did his analysis or one of
22 the ways is by looking at that bombshell news and seeing what
23 happened to the user base before and after. And so we are
24 measuring economic harm across the class if people are not
25 changing their behavior.

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1 And Serge Egelman opened the door to this testimony too.
2 He, despite not being an expert in those areas, offered
3 numerous opinions --

4 THE COURT: And I can't -- we just have to wait for
5 the --

6 MR. LEVIS: If I may just --

7 THE COURT: He's not going to start talking about
8 notice and things like that.

9 MR. LEVIS: I can illustrate this pretty briefly.
10 That's not an accurate representation --

11 THE COURT: Let's just wait. Let's bring the jury.
12 Let's finish, and then we have plenty of time to deal with
13 this later.

14 MS. POZOS: Your Honor, may I just address one
15 scheduling matter?

16 THE COURT: Yes.

17 MS. POZOS: My understanding is -- having spoken to
18 other counsel and having worked with the Court this morning, on
19 the order of witnesses, Mr. Satterfield will finish testifying
20 and then I believe no one is opposed to our witness
21 Dr. Klepchukova, in London, testifying. We've tested the Zoom
22 tech this morning with the Court. She is ready and waiting.
23 Due to the time difference, I believe plaintiffs' counsel has
24 no issue with her testifying after Mr. Satterfield.

25 MR. CANTY: Your Honor, we said we would defer to

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1 the Court and the Court's convenience. We prefer to move
2 forward with our case, but if the Court wants to take this out
3 of order --

4 **THE COURT:** It's your case. You can call them any way
5 you want.

6 **MR. CANTY:** We're not calling him, Your Honor. To be
7 clear, he's not our witness. We're not calling them.

8 **THE COURT:** I know, so just do your case and --

9 **MR. CANTY:** Thank you.

10 **THE COURT:** Do you want to put that binder back?
11 Okay. Let's bring in the jury, please.

12 **MS. McCLOSKEY:** Your Honor, Elizabeth McCloskey.

13 Can I just raise two quick objections to Mr. Satterfield's
14 questioning by plaintiffs' counsel on Thursday?

15 Counsel used --

16 **THE COURT:** No retroactive objections. You've got to
17 do them on the fly.

18 Okay. Bring the jury out, please.

19 **THE COURTROOM DEPUTY:** For the people sitting in the
20 gallery, there's no drinking, no use of cell phones or laptops
21 unless you are press.

22 **THE COURT:** Where is the witness? Bring him on up.
23 (Stephen Satterfield steps forward to resume the stand.)

24 \\\

25 \\\

SATTERFIELD - CROSS / McCLOSKEY

1 STEPHEN SATTERFIELD,

2 called as a witness for the Plaintiffs, having been previously
3 duly sworn, testified further as follows:

4 (The jury enters the courtroom.)

5 (Proceedings were heard in the presence of the jury.)

6 **THE COURTROOM DEPUTY:** Please be seated.

7 **THE COURTROOM DEPUTY:** We're back on the record in
8 Civil 21-757, Frasco versus Flo Health.

9 **THE COURT:** All right. Good morning. We're going to
10 finish with this witness and full speed ahead.

11 Go ahead.

12 **BY MS. McCLOSKEY:**

13 **Q.** Welcome back, Mr. Satterfield.

14 **A.** Thank you.

15 **Q.** When we left off this week, we were in the middle of
16 Trial Exhibit 1226, which has three versions of Facebook's data
17 policy which were in effect during the class period: A version
18 from 2015, from 2016, and 2018.

19 I'd like to take a look at the first paragraph of
20 Facebook's 2018 data policy. And, again, the data policy is
21 part of the agreement between Facebook and all its users;
22 correct?

23 **A.** Yes.

24 **Q.** Okay. Can you please read for the jury the first
25 paragraph of Facebook's 2018 data policy on your screen now?

1 **A.** Yes. It says (as read):

2 "This policy describes the information we
3 process to support Facebook, Instagram, Messenger,
4 and other products and features offered by Facebook
5 (Facebook Products or Products). You can find
6 additional tools and information in the Facebook
7 settings and Instagram settings."

8 **Q.** Thank you.

9 Mr. Satterfield, what is the purpose of the data policy
10 which is a part of the agreement between Facebook and its
11 users?

12 **A.** It's a detailed description of how we collect, share, and
13 store information, how we use information.

14 **Q.** Okay. Great. Let's go to the section "What kinds of
15 information do we collect," and we'll go in that section to the
16 header "How do we use this information?"

17 I'm going to pull up the first full paragraph under "How
18 do we use this information?" called "Provide, personalize, and
19 improve our products."

20 Can you please read to the jury the highlighted portion of
21 this paragraph.

22 **A.** Yes. (as read):

23 "We use the information we have to deliver our
24 products, including to personalize features and
25 content, including your news feed, Instagram feed,

1 Instagram stories, and ads, and make suggestions for
2 you such as groups or events you may be interested in
3 or topics you may want to follow on and off our
4 products.

5 "To create personalized products that are unique
6 and relevant to you, we use your connections,
7 preference, interests, and activities based on the
8 data we collect and learn from you and others."

9 Am I just reading the highlighted portions?

10 Q. Yes. Thank you.

11 A. And then it also says (as read):

12 "You can learn more about how we choose the ads
13 you see," at the very end of the paragraph.

14 Q. Thank you.

15 Mr. Satterfield, is this paragraph one of the places where
16 Facebook informs users that it uses their data to personalize
17 features and content, including ads?

18 A. Yes. It's one of many places where we explain this.

19 Q. Okay. Great.

20 Let's turn to page 15 and take a look at another section
21 under "How do we use this information?" called "Ads and other
22 sponsored content."

23 And can you please read this paragraph to the jury.

24 A. (As read):

25 "We use the information we have about you,

1 including information about your interests, actions,
2 and connections, to select and personalize ads,
3 offers, and other sponsored content that we show you.
4 Learn more about how we select and personalize ads
5 and your choices over the data we use to select ads
6 and other sponsored content for you in the Facebook
7 settings and Instagram settings."

8 Q. Is this yet another part of Facebook's data policy where
9 it informs users that it uses the information it has about
10 users to select and personalize ads?

11 A. Yes, that's what this is.

12 Q. And you can see at the end there that there's highlighted
13 language going to Facebook settings and Instagram settings;
14 correct?

15 A. Yes.

16 Q. Are those links?

17 A. Yes, they are.

18 Q. And what do they link to? What types of information do
19 they link to?

20 A. Well, they link to controls that would govern your ad
21 experience and the information that Facebook uses to show you
22 ads.

23 And so, for example, we talked about the -- what we
24 sometimes call the third-party data control where if a
25 third-party app, website, sends us information through the SDK,

1 you can choose whether that information is used to advertise to
2 you. We also have a control that allows you to choose whether
3 that information is stored with your account.

4 Those are the kinds of settings that would be available
5 behind those links.

6 Q. Okay. Let's look at one more section under "How do we use
7 this information?" Let's pull up "Provide measurement
8 analytics and other business services."

9 And once again, can you please read this language to the
10 jury.

11 A. Yes. (As read):

12 "We use the information we have, including your
13 activity off our products, such as the websites you
14 visit and the ads you see, to help advertisers and
15 other partners measure the effectiveness and
16 distribution of their ads and services and understand
17 the types of people who use their services and how
18 people interact with their websites, apps, and
19 services. Learn more how we share information with
20 these partners."

21 Q. Is this one place in Facebook's agreements with users
22 where Facebook informs users that it can use the information it
23 receives from apps to provide analytic services, measurement
24 services to those apps?

25 A. Yes. That's what's being described here. The analytics

SATTERFIELD - CROSS / McCLOSKEY

1 reports that an app developer would see if they were to use the
2 SDK, that's what's being described here.

3 Q. I'd like to turn to the next section of the data policy,
4 which is entitled "How is this information shared?" and pull up
5 a paragraph under "Sharing with third-party partners."

6 Thank you.

7 And, Mr. Satterfield, can you just please read the
8 highlighted sentence to the jury.

9 A. (As read):

10 "We don't sell any of your information to anyone
11 and we never will."

12 Q. Is this where Facebook promises users that it will never
13 share -- it will never sell user data?

14 A. Yes, that's right.

15 Q. Okay. Let's turn to the very end of this section "How is
16 your information shared?" and pull up the final paragraph of
17 this section.

18 And will you just read this one sentence to the jury.

19 A. Yes. This says (as read):

20 "Learn more about how you can control the
21 information about you" --

22 I'm sorry.

23 (As read):

24 "Learn more about how you can control the
25 information about you that you or others share with

1 third-party partners in the Facebook settings and
2 Instagram settings."

3 **Q.** Is this another place in the data policy where Facebook
4 gives information about how to control the use of information
5 about them?

6 **A.** Yes, and these settings would have been the ones that I
7 described a moment ago.

8 **Q.** And I'd like to pull up just one more portion of this data
9 policy. Let's pull up the end of the data policy under the
10 header "How will we notify you of changes to this policy?"

11 And can you please read this language aloud.

12 **A.** Yes. (As read):

13 "We'll notify you before we make changes to this
14 policy and give you the opportunity to review the
15 revised policy before you choose to continue using
16 our products."

17 **Q.** Mr. Satterfield, in Facebook's data policies as well as in
18 its terms of service that we looked at last week, does Facebook
19 provide similar language about periodic updates it makes to its
20 agreements with users?

21 **A.** Yes, it does.

22 **Q.** And did Facebook and Instagram users who continued to use
23 those platforms agree to updated versions of these agreements,
24 the terms of service and the data policy?

25 **MR. CANTY:** Objection.

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1 **THE COURT:** What's the objection?

2 **MR. CANTY:** Calls for opinion.

3 **THE COURT:** Let's see. Why don't you reask that.

4 **MS. McCLOSKEY:** Sure.

5 **BY MS. McCLOSKEY:**

6 **Q.** Did Facebook generally notify users whenever it made
7 material updates to these agreements, the terms of service or
8 the data policies, for example, through in-app notifications
9 and then through e-mails?

10 **A.** Yes. It's our standard practice when we're making a
11 material update to the terms of service or the privacy policy
12 that we would provide in-product notice, a notice in the apps.

13 **Q.** And is continued use of Facebook and Instagram subject to
14 those updated versions of the terms of service and data policy?

15 **A.** Yes. We would make that clear that your continued use of
16 the products constitutes your agreement to the revised, updated
17 terms and privacy policies.

18 **MS. McCLOSKEY:** We can take that down, Mr. Johnson.

19 **BY MS. McCLOSKEY:**

20 **Q.** Do you recall that during your testimony on Thursday,
21 plaintiffs' counsel asked you about certain documents that you
22 had never seen until plaintiffs' counsel showed them to you at
23 your deposition in this matter?

24 **A.** Yes.

25 **Q.** And your deposition in this matter was just two and a half

SATTERFIELD - CROSS / McCLOSKEY

1 weeks ago; correct?

2 A. Yes.

3 Q. So to be clear, those documents that you were shown by
4 plaintiffs' counsel for the first time in your deposition, you
5 had never seen those documents until two and a half weeks ago
6 despite the fact that they were written years and years ago?

7 MR. CANTY: Objection.

8 THE COURT: Why don't you just ask a question rather
9 than lead the witness down the garden path.

10 BY MS. McCLOSKEY:

11 Q. Had you seen those documents, which were dated from 2018,
12 2019, before your deposition two and a half weeks ago?

13 MR. CANTY: Objection.

14 THE COURT: You can -- he can answer.

15 THE WITNESS: I hadn't, no.

16 BY MS. McCLOSKEY:

17 Q. Mr. Satterfield, on Thursday, plaintiffs' counsel asked
18 you questions which tried to compare Meta to others in the
19 industry.

20 Do you believe that Meta has been an industry leader with
21 respect to protecting the privacy interests of its users?

22 MR. CANTY: Objection.

23 THE COURT: You can answer that. Go ahead. It's just
24 his view. Meta employees can tell you about Meta.

25 Okay. Go ahead.

SATTERFIELD - CROSS / McCLOSKEY

1 **THE WITNESS:** I strongly believe that we've been a
2 leader, including in some of the protections that we've talked
3 about in this case.

4 **BY MS. McCLOSKEY:**

5 **Q.** Now, in this case, plaintiffs allege that Facebook
6 software development kit is a recording device used to record
7 confidential communications.

8 Is the software development kit a recording device?

9 **MR. CANTY:** Objection.

10 **THE COURT:** Sustained.

11 **BY MS. McCLOSKEY:**

12 **Q.** Mr. Satterfield, did Facebook ever intentionally record
13 any user's communications with Flo, to the best of your
14 knowledge?

15 **MR. CANTY:** Objection.

16 **THE COURT:** You need to lay a foundation before
17 you ask that.

18 **BY MS. McCLOSKEY:**

19 **Q.** Mr. Satterfield, through your work at Facebook, you have
20 become familiar with how the software development kit works;
21 correct?

22 **A.** Yes, I have.

23 **Q.** And you've been working in areas relating to the software
24 development kit for quite a few years now during your tenure at
25 Facebook; correct?

1 **A.** Yes.

2 **Q.** To the best of your knowledge, did Facebook ever
3 intentionally record any of its users' confidential
4 communications with the Flo app?

5 **MR. CANTY:** Objection.

6 **THE COURT:** Sustained. The foundation is not adequate
7 for that question.

8 **MS. McCLOSKEY:** Okay.

9 **BY MS. McCLOSKEY:**

10 **Q.** To the best of your knowledge, did Facebook ever record
11 any communications using the software development kit?

12 **MR. CANTY:** Objection.

13 **THE COURT:** You've got to build the floor before you
14 can ask him these things. The floor is not there, so that's
15 sustained.

16 **BY MS. McCLOSKEY:**

17 **Q.** Mr. Satterfield, are you aware of how the software
18 development kit functions?

19 **A.** Yes.

20 **Q.** And you're aware that people use apps and input
21 information into those apps?

22 **A.** Yes.

23 **Q.** And you have become familiar through your work at Facebook
24 with how those apps send information to Facebook; correct?

25 **A.** Yes.

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1 Q. Based on your knowledge of how the software development
2 kit works and how you -- people can enter information into
3 apps, is it -- are you aware of whether Facebook ever recorded
4 communications using the software development kit?

5 MR. CANTY: Objection.

6 THE COURT: Just for me and for the jury --
7 Now, I understood you were an attorney; is that right?

8 THE WITNESS: I am now. I was not an attorney for the
9 company at this point.

10 THE COURT: No, no. You're an attorney --

11 THE WITNESS: Yes.

12 THE COURT: Okay. Are you also a software engineer?

13 THE WITNESS: No, I'm not.

14 THE COURT: You've never done any engineering work?

15 THE WITNESS: I have not.

16 THE COURT: Okay.

17 Those are sustained. You can't ask those questions.

18 MS. McCLOSKEY: Okay. One moment.

19 (Counsel conferring.)

20 BY MS. McCLOSKEY:

21 Q. Through your work at Facebook, did you have work relating
22 to whether Facebook collects information, receives information
23 from third-party apps?

24 A. Yes.

25 Q. And did you ever hear through your work at Facebook in

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1 words or substance that Facebook wanted to receive confidential
2 communications between any user and any app?

3 MR. CANTY: Objection.

4 THE COURT: That's sustained.

5 MS. McCLOSKEY: Okay. Thank you, Mr. Satterfield.

6 THE COURT: Okay. Any brief redirect?

7 MR. CANTY: Yes, Your Honor.

8 REDIRECT EXAMINATION

9 BY MR. CANTY:

10 Q. Mr. Satterfield, you were asked questions about
11 Trial Exhibit 226; correct?

12 A. I'm sorry. I --

13 Q. That's the one we were just talking about, 226C --

14 A. Okay.

15 Q. -- which is the 2018 data policy.

16 A. Yes.

17 Q. And I'd like to turn to the paragraph where it says
18 "Information from websites and apps that use our services."

19 A. Oh.

20 THE COURT: Can you put that up for us?

21 MR. CANTY: Sure.

22 THE COURT: Do you have that?

23 THE WITNESS: I don't have it.

24 THE COURT: I think we'll need it on the screen.

25 MR. CANTY: That would be great.

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1 I'm sorry. 1226. Sorry.

2 THE WITNESS: I have it now.

3 BY MR. CANTY:

4 Q. Okay. I'd like to turn to page 2, where it says -- do you
5 see where it says "Information from websites and apps that use
6 our services"?

7 A. Sorry. It's gone away, and I think we were on the wrong
8 page.

9 Q. Well, let me ask you this: You've looked at a number of
10 privacy policies and data policies, in fact, the policies that
11 we just looked at, which is 1226C, runs some nine pages; is
12 that right?

13 A. I don't know how many pages it was, but that sounds about
14 right.

15 MR. CANTY: May I approach the witness, Your Honor?

16 THE COURT: Yes.

17 (Counsel approaches witness.)

18 BY MR. CANTY:

19 Q. Why don't you take a look and you can count.

20 A. (Witness examines document.)

21 Yes, it's nine pages.

22 Q. And can you tell me where in this -- this data policy you
23 disclosed to users that you'd collect sensitive health
24 information from the Flo Health app?

25 A. We didn't collect that information. That information, we

1 told developers not to send us.

2 Q. Well, you're aware there was testimony in this case that
3 that information was, in fact, sent to Meta? Are you disputing
4 that that happened?

5 A. Yes.

6 Q. Okay. And nowhere in that document do you see the words
7 "Flo" -- "the Flo app;" correct?

8 A. In the privacy policy? The Meta privacy policy?

9 Q. The data policy.

10 A. No, it doesn't reference the Flo Health app.

11 Q. It doesn't mention pregnancy apps; correct?

12 A. It doesn't mention pregnancy apps.

13 Q. And it doesn't mention fertility tracking apps?

14 A. No, it does not.

15 Q. So it's your testimony that Meta never received data --
16 custom app event and parameters from Flo? Is that your
17 testimony?

18 A. No, that's not my testimony. I think there's been
19 evidence in the case that Flo did send certain information that
20 would have included things like custom app events.

21 Q. And the parameters like a woman wanting to get pregnant or
22 tracking her cycle or that she was pregnant; correct?

23 A. I -- I don't know enough about the specifics about what
24 was sent. I know that custom app events were part of what was
25 sent. I saw testimony about that. I've heard about that. But

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1 I can't really go any deeper on the specifics of what came
2 over.

3 Q. Okay. And you were aware -- we went over last week that
4 there were two letters that were sent or e-mails that were sent
5 to the Flo Health app, one in December of 2018 and one in
6 January of 2019, indicating that they may have been sending
7 sensitive data through the custom app events; correct?

8 A. Yes. Those were -- those were notices that went out
9 because they were sending -- or they may have been sending
10 information that was triggering the PII filter that we talked
11 about.

12 Q. But that letter specifically highlighted that they may be
13 sending information involving health data; correct?

14 A. No, that's not what it said.

15 Q. Let's pull up the letter.

16 A. It cited the policy, which refers to a number of different
17 categories of information that developers are prohibited from
18 sending us.

19 Q. And one of those was health data; correct?

20 A. Yes, but you suggested that the notice was about their
21 having sent health data, and that's not -- that's not correct.

22 Q. Sure.

23 With respect to that e-mail that went out, did you
24 investigate whether or not Flo had violated the business tools
25 terms?

1 **A.** I wouldn't have been involved in an investigation. I
2 wasn't involved in the investigation here, if there was one.

3 **Q.** Well, you're aware that they --

4 Well, let me ask you this: In the business tools terms,
5 you require that apps have an opt-out provision clearly
6 delineated in their terms of service or their privacy policy
7 with their users; correct?

8 **A.** I think what you're referring to is the requirement that
9 apps point people to where they can opt out of having the
10 information that the developer sends used for advertising.

11 **Q.** Right. And -- or were you aware that your business tools
12 terms require that to be robust and sufficiently prominent
13 notice; right? Isn't that what the business tools terms say?

14 **A.** Yes. Now, we're talking about two slightly different
15 things here; right? There's notice and then there is a pointer
16 to the control for ads. And so what you're describing is the
17 notice requirement.

18 **Q.** And were you aware that that was nowhere in any of the --
19 in any of the privacy policies that Flo had put out to its
20 users?

21 **MS. McCLOSKEY:** Objection.

22 **THE COURT:** Why don't you rephrase that.

23 **BY MR. CANTY:**

24 **Q.** Well, have you had the opportunity during the course of
25 this litigation to actually look at Flo's privacy policies?

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1 **A.** I -- during someone's testimony earlier this week, I saw
2 some excerpts, but I haven't reviewed in depth, no.

3 **Q.** So you can't say definitively whether or not they complied
4 with the business tools terms that you require all your app
5 developers to follow; right?

6 **MS. McCLOSKEY:** Objection.

7 **THE COURT:** Well, if the question is "Do you know if
8 Flo complied with that policy," do you know one way or the
9 other?

10 **THE WITNESS:** I don't.

11 **THE COURT:** Okay.

12 **BY MR. CANTY:**

13 **Q.** And, in fact, Meta never took any action against Flo?
14 They never suspended their use of the SDK; correct?

15 **A.** So, again, I wouldn't have been involved in any
16 investigation or action against a particular developer like
17 Flo, so I couldn't -- I couldn't speak to that.

18 **Q.** Well, as you sit here today, do you know if Meta has taken
19 any action against Flo for violating the business tools terms?

20 **MS. McCLOSKEY:** Objection.

21 **THE COURT:** If you know.

22 **THE WITNESS:** I -- first of all, I don't -- I don't
23 know that there's been any conclusion that they violated the
24 business tools terms, but I'm not aware of any sort of
25 investigation or action.

1 BY MR. CANTY:

2 Q. Well, if they had sent information like where a woman was
3 in her ovulation or where she was in her cycle, would you --
4 would you believe that that would have violated the business
5 tools terms that required app developers to not send sensitive
6 health data?

7 MS. McCLOSKEY: Objection.

8 THE COURT: That's sustained.

9 BY MR. CANTY:

10 Q. Well, did you consider sensitive health data with respect
11 to where a woman is in her menstrual cycle to be data that
12 should not be sent to Meta?

13 A. This is a -- this is a really hard question. It's hard to
14 make an -- to form an opinion about that in the abstract
15 without knowing exactly what data came over.

16 Q. Well, as of today, you have a health -- you have a health
17 filter that precludes this information that you described it as
18 it filters it out; right?

19 A. The health filter is a filter that operates by classifying
20 websites and apps and then is triggered by certain terms that
21 are health-related. I don't have a comprehensive knowledge of
22 what those terms are or even which apps were classified, and I
23 haven't worked on this stuff for a while, so I couldn't say for
24 sure what would be triggered and what wouldn't.

25 Q. Well, if -- if information like where a woman was in her

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1 menstrual cycle were sent today, would that be information that
2 Meta would still collect through custom app events?

3 **MS. McCLOSKEY:** Objection.

4 **THE COURT:** Overruled. You can answer that.

5 **THE WITNESS:** I just don't know. I don't have
6 enough -- I don't have a good enough knowledge of our health
7 filter today to -- to have an opinion about that.

8 And I think -- again, we talked about this last week.
9 It's very context-dependent. Like what is sensitive and what
10 isn't? It depends on which app is sending the information.

11 There's a lot more here to consider, so I can't just sort
12 of form a judgment, you know, sitting here today.

13 **BY MR. CANTY:**

14 **Q.** So what does this health filter catch if it's not catching
15 sensitive information about where a woman is in her menstrual
16 cycle?

17 **MS. McCLOSKEY:** Objection.

18 **THE COURT:** You can answer what your understanding is
19 of what this filter catches.

20 **THE WITNESS:** So my understanding -- and, you know, I
21 haven't worked on this for a while, but I did work on it in the
22 early days in 2019.

23 My understanding is it does two things: One is that it
24 tries to classify health-related websites, and then when those
25 health websites or apps send information over, there is a --

1 essentially a list. And that list is dynamic. It is -- you
2 know, it gets bigger over time through machine learning. But
3 there's a list that looks for particular terms.

4 And if -- if -- if the transmissions from an app contain
5 those terms, then it could potentially -- that information
6 could be blocked or deleted, set aside.

7 I don't know what the terms are in the -- on the list.
8 You know, there are medical conditions, diseases -- I think
9 it's things like that. I don't know how the information that
10 you were referring to would be treated by the list.

11 **BY MR. CANTY:**

12 **Q.** Do you know if pregnancy is on the list?

13 **MS. McCLOSKEY:** Objection.

14 **THE COURT:** You can answer.

15 **THE WITNESS:** I don't know. I don't -- I don't know
16 whether it's on the list.

17 **BY MR. CANTY:**

18 **Q.** Now, you're aware -- we went over this nine-page data
19 policy.

20 Were you aware that Mark Zuckerberg testified before the
21 United States Senate during the class period and stated, quote,
22 Long privacy policies are very confusing and that, quote, We do
23 not expect that most people will want to go through them and
24 read them; were you aware of that testimony?

25 **MS. McCLOSKEY:** Objection, Your Honor.

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1 **THE COURT:** Overruled.

2 Did you know about that?

3 **THE WITNESS:** I don't remember that testimony. It
4 sounds right. I think he's right.

5 **BY MR. CANTY:**

6 **Q.** So do you agree with him when he says that we don't expect
7 most people --

8 (Reporter interruption for clarity of the record.)

9 **THE COURT:** You had you two days off. Relax.
10 Three days, actually.

11 **MR. CANTY:** Yes, Your Honor.

12 **THE COURT:** Go ahead.

13 **BY MR. CANTY:**

14 **Q.** Do you agree with him when he says, quote, We do not
15 expect that most people will want to go through and read them?

16 **A.** Again, what he was saying, if I've got this right, is that
17 he doesn't think long privacy policies are things that people
18 would want to go through and read.

19 I don't think ours is a particularly long policy. I think
20 it's pretty economically presented.

21 **Q.** Well, the United States Senate disagreed; correct?

22 **MS. McCLOSKEY:** Ob- --

23 **THE COURT:** That's sustained. Forget about that part.

24 **MR. CANTY:** Your Honor, just a few more questions.

25 \\

1 BY MR. CANTY:

2 Q. Just to be clear, the health -- the health data filtering
3 system was rolled out in late 2019; correct?

4 A. Yes.

5 Q. And that was some 10 months after the end of the class
6 period?

7 A. Could you remind me about the class period? Is it in
8 February?

9 Q. It's February 28, 2019.

10 A. Okay. So that sounds right, 10 months.

11 Q. And last week you talked about a filtering system and you
12 described it as a firewall. I just want to be clear.

13 You take the data in, you classify it, and then you make a
14 determination as to whether or not you want to use it; isn't
15 that right?

16 A. Sorry. Are you asking me about the filtering? I'm sorry.

17 MS. McCLOSKEY: Objection. 615.

18 THE COURT: Just try it again.

19 BY MR. CANTY:

20 Q. Last week we talked about the filtering systems, and I
21 asked whether or not you just stop all the data from coming in
22 so you never see it and I -- I described it as a firewall, and
23 you said, yeah, that firewall and filtering system are the
24 same.

25 I just want to get clarity on this. The filtering system

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1 takes the information in, and then the filtering system makes a
2 determination as to whether or not Meta should use that or
3 exclude that data; correct?

4 MS. McCLOSKEY: Objection. 602.

5 THE COURT: Can you answer it?

6 THE WITNESS: I can do my best. I'm probably not --
7 I'm -- again, I'm not on the technical side. My understanding
8 is that, you know, we have to be able to use the filtering
9 system to identify what the words are. And so, you know,
10 that -- that -- to that extent, we would have to process that
11 information in order to make a decision about whether it gets
12 ingested into the system.

13 So there is a -- there is a filter, and that does require
14 some understanding of what those terms are, whether they're on
15 the list.

16 BY MR. CANTY:

17 Q. And as you sit here today, you're not aware of whether or
18 not Meta took any legal action against Flo for the conduct that
19 they engaged in between 2016 and 2019; correct?

20 MS. McCLOSKEY: Objection.

21 THE COURT: Overruled.

22 THE WITNESS: I'm not aware of any action against Flo.

23 MR. CANTY: Thank you.

24 No further questions, Your Honor.

25 THE COURT: Okay. Careful on the way down.

PROCEEDINGS

1 And who do we have next?

2 (Witness excused.)

3 MR. CANTY: Your Honor, the plaintiffs call Tobias
4 Wooldridge.

5 (Tobias Wooldridge steps forward to be sworn.)

6 THE COURTROOM DEPUTY: Just come forward.

7 THE COURT: You should take that other binder down,
8 please.

9 THE COURTROOM DEPUTY: Please stand and raise your
10 right hand.

11 TOBIAS WOOLDRIDGE,
12 called as a witness for the Plaintiffs, having been duly sworn,
13 testified as follows:

14 THE WITNESS: Yes.

15 THE COURTROOM DEPUTY: Please be seated.

16 Please state your full name for the Court and spell your
17 last name.

18 THE COURT: I'm sorry. Do you have something?

19 MS. BARRERA: The picture -- this is the picture,
20 right here.

21 MR. CANTY: We have competing pictures, Your Honor.

22 THE COURT: What?

23 MR. CANTY: We have competing pictures.

24 THE COURT: Well, which one looks like he's in court?

25 (Laughter.)

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1 **THE COURT:** Use that one. That looks like he's in
2 court. Take that one back. This is a better photo.

3 **MR. CANTY:** Your Honor, before we begin the
4 examination, upon consent, the parties have agreed that --

5 **THE COURT:** Ms. Clark will have to write this down, so
6 just wait a moment.

7 **MR. CANTY:** Okay.

8 **THE COURT:** Okay. Go ahead.

9 **MR. CANTY:** We have agreed that 226A is in evidence.

10 **THE COURT:** All right. 226A.

11 **MR. CANTY:** 110A is in evidence with a limiting
12 instruction that the parties are working on.

13 **THE COURT:** All right.

14 **MR. CANTY:** 111R. 235, Trial Exhibit 235. And
15 Trial Exhibit 104R. And that's on agreement.

16 **THE COURT:** Okay. Go ahead.

17 (Trial Exhibits 226A, 110A, 111R, 235, 104R received in
18 evidence.)

19 **DIRECT EXAMINATION**

20 **BY MR. CANTY:**

21 **Q.** Good morning.

22 **A.** Good morning.

23 **THE COURT:** All right. Ms. Clark, I think you were
24 asking for the name.

25 **THE COURTROOM DEPUTY:** Please state your full name for

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1 the Court and spell your last name.

2 **THE WITNESS:** My name is Tobias Wooldridge. And my
3 last name is spelled W-O-O-L-D-R-I-D-G-E.

4 **BY MR. CANTY:**

5 **Q.** Good morning, Mr. Wooldridge.

6 Are you currently employed?

7 **A.** Yes, at Meta.

8 **Q.** And how long have you worked at Meta?

9 **A.** I have worked at Meta for more than 10 years.

10 **Q.** And what is your role or title at Meta?

11 **A.** Yeah, I am a software engineer at Meta.

12 **Q.** And how long have you been a software engineer at Meta?

13 **A.** For the entire ten and a half years I've been employed
14 here.

15 **Q.** And you've previously testified in a previous proceeding
16 under oath; correct?

17 **A.** So far as I was deposed, yes.

18 **Q.** At a deposition?

19 **A.** Yes.

20 **Q.** And you understand that your deposition was under oath as
21 well; right?

22 **A.** Yes.

23 **Q.** Okay. Now, your answers were in your capacity as a
24 corporate representative of Meta; correct?

25 **A.** That is correct.

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1 Q. And your answers were equivalent as if Meta was answering
2 those questions; correct?

3 A. Yes.

4 Q. All right. Mr. Wooldridge, you also signed what are known
5 as interrogatories on behalf of Meta, which are questions that
6 plaintiffs posed to Meta and that Meta answered; right?

7 A. I did.

8 Q. And in response to those interrogatories, Meta provided
9 formal answers; is that right?

10 A. Yes.

11 MR. CANTY: I'd like to turn to Trial Exhibit 220 --
12 226A, in evidence.

13 If we could go to the last page.

14 BY MR. CANTY:

15 Q. Mr. Wooldridge, do you see your signature at the back of
16 that document? It's also on your screen.

17 A. I'm sorry.

18 Q. Mr. Wooldridge, it's --

19 A. Yeah, I see it.

20 Q. And that is your signature?

21 A. Yes.

22 Q. All right. Let's turn to page 13 where it starts "Content
23 delivery optimization."

24 Now, you're aware that once --

25 MR. CANTY: Can we -- thank you.

1 BY MR. CANTY:

2 Q. You're aware that once custom app events are received by
3 Meta, Meta attempts to identify and match that data to Facebook
4 users; correct?

5 A. It attempts it, yes.

6 Q. I'm sorry?

7 A. It attempts it, yes.

8 Q. And looking at this content delivery optimization section
9 here, Meta's response, which you verified, Meta confirms that
10 the Flo app event data that Meta received through the Facebook
11 SDK was used in Meta's machine learning systems; correct?

12 A. Yes.

13 Q. And by this content delivery optimization, Meta is
14 referring to using machine learning to prioritize showing ads
15 to people that they're likely to respond to; correct?

16 A. Yes.

17 Q. And what does it mean when it says "Meta wants to improve
18 the accuracy of content delivery"?

19 A. Is that a quote in that document?

20 Q. I'm asking you what does it mean when Meta says it "wants
21 to improve the accuracy of content delivery"?

22 A. Okay. Yeah, so -- Meta wants to show people ads that are
23 useful to them, essentially. So, you know, if there's no
24 chance or if you're not interested in a product, you probably
25 don't want to see ads for that product.

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1 Q. And Meta uses machine learning to improve that; correct?

2 A. Machine learning is used as part of that, yes.

3 Q. And Meta uses machine learning system to improve delivery
4 of advertisement from advertisers other than Flo Health;
5 correct?

6 A. Meta uses machine learning for all advertisers, yes.

7 Q. So you would agree with me that it's fair to say that Meta
8 used the Flo app data to improve its advertising system, even
9 if no Flo app user ever got an ad directly related to the
10 information that was provided to the machine learning system;
11 correct?

12 A. Yes.

13 Q. So just to clarify, another user of a completely different
14 product or company could have received an advertisement due to
15 the fact that Flo app event data was being ingested into that
16 machine learning system; right?

17 A. I don't know if I would frame the way the system works in
18 that way.

19 Q. But information that's ingested by one app may train the
20 system to tell it that another ad for another different product
21 may be relevant to another individual that never used the app
22 where that information came from; correct?

23 A. I wouldn't frame it in exactly that way, but loosely
24 speaking, yes.

25 Q. Okay. Now, you understand that Meta received both custom

1 app events and standard app events from the Flo Health app;
2 right?

3 A. Yes.

4 Q. And as an engineer, you -- were you aware that in
5 conjunction with the custom app events, Meta also received
6 identifiers, device identifiers, from Flo app associated with
7 that user; correct?

8 A. The app could send mobile advertising device identifiers
9 along with the events it sent, yes.

10 Q. So that would be an AAID for an Android device or an IDFA
11 for an Apple device; right?

12 A. Yes.

13 Q. And you've testified previously that the primary use for
14 the AAID and the IDFA is to match the device back to an
15 original Facebook or Instagram user; correct?

16 MR. CLUBOK: Objection.

17 THE COURT: What?

18 MR. CLUBOK: I said "objection," Your Honor.

19 THE COURT: Overruled. Go ahead.

20 THE WITNESS: So it was used to match to accounts,
21 yes.

22 BY MR. CANTY:

23 Q. And those accounts are individual accounts; correct?

24 A. Could you describe what you mean by "individual accounts"?

25 Q. Well, the vast majority of Facebook users and Instagram

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1 users are individuals that sign up as individuals either for
2 Facebook or Instagram; correct?

3 **A.** Sort of. My dog has an Instagram account.

4 **Q.** I'm sorry?

5 **A.** My dog has an Instagram account as well.

6 **Q.** Okay. But the vast majority of accounts are individuals;
7 correct?

8 **A.** I think that's probably accurate.

9 **Q.** Now, I'd like to turn to Trial Exhibit 110A, which is in
10 evidence.

11 **MR. CANTY:** And, Your Honor, we have a limiting
12 instruction that --

13 **THE COURT:** Why don't you hand it to me and I'll take
14 a look at it. Don't put 110 up yet.

15 Did you all agree to this?

16 **MR. CLUBOK:** Yes, Your Honor. We've agreed to the
17 limiting instruction and also just the clarification that 110A
18 is just an excerpt of 110.

19 **THE COURT:** Okay. The answer was just "yes," period.
20 Do you agree to this, Plaintiff?

21 **MR. CANTY:** We agree to it.

22 **THE COURT:** All right.

23 Okay. You can put -- 110A is admitted.

24 Once it goes up, I'm going to read to you what the parties
25 have agreed to.

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1 Okay. As you can see, this is a document entitled
2 "Summary of App Events."

3 The parties have agreed that this exhibit reflects
4 worldwide data and that data was received -- data that was
5 received from California is also in this, but it's not just
6 California.

7 And the parties have agreed that you can consider this for
8 the limited purpose of considering the claim against Meta and
9 only insofar as it includes data received from California
10 during the class period and that Meta associated Flo custom --
11 Flo Health custom app event names with an approximate number of
12 unique individuals during a time period that includes the class
13 period and not for any other purpose.

14 This is being admitted just against Meta, by the way, not
15 against Flo. I'll remind you of all this when it comes time.
16 Okay? But that's basically the gist of it.

17 Okay. Go ahead.

18 **MR. CANTY:** All right. Can we go to page 3, please.

19 **BY MR. CANTY:**

20 **Q.** Mr. Wooldridge, at the bottom of page 3 in the first
21 column, you see the custom app event R_CHOOSE_GOAL?

22 **A.** I do see that, yes.

23 **Q.** And the second column indicates that that was a custom app
24 event; correct?

25 **A.** Yes.

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1 Q. And the third column confirms that -- one, that Meta was
2 able to individually identify those custom app event answers to
3 an individual Facebook account 34,203,828 times; correct?

4 A. No.

5 Q. That's not what it --

6 MR. CANTY: Can we go to the top of the screen?

7 BY MR. CANTY:

8 Q. Can you read the Exhibit A-1, what it says at the top.

9 A. The title?

10 Q. Yes.

11 A. It says "Summary of app events from the Flo Health app,
12 app ID" -- a long number -- "to Facebook, December 9, 2017,
13 through December 4, 2019, as of December 4, 2019."

14 Q. And then the third column says "Approximate number of
15 unique individuals associated with event"; correct?

16 A. Yes.

17 Q. So Facebook was able to identify the approximate number of
18 unique individuals associated with the event. So if we go down
19 to the bottom of the page again.

20 That Number 4, the unique event, R_CHOOSE_GOAL, the
21 approximate number was 34,203,828; correct?

22 A. That is the number, yes.

23 Q. Now, this includes -- okay. No further questions on that.
24 I'd like to look at 111R.

25 Mr. Wooldridge, you've seen this document before; correct?

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- 1 **A.** Yeah. It's been introduced to you to me as part of this.
- 2 **Q.** This was an internal document from Meta; correct?
- 3 **A.** Correct.
- 4 **Q.** And on the second page, there appears to be a data flow
5 chart.
- 6 Do you see that?
- 7 **A.** I do see that diagram, yes.
- 8 **Q.** And in your previous deposition, do you recall going
9 through this data flow chart?
- 10 **A.** I remember discussing it, yes.
- 11 **Q.** And it's fair to say that this represents the data flow
12 chart for Meta during the class period; correct?
- 13 **A.** I wouldn't put it exactly that way. This is a high-level
14 data flow diagram for a particular system within Meta.
- 15 **Q.** Which was in effect during the class period between 2016
16 and 2019; correct?
- 17 **A.** Yes.
- 18 **Q.** Now, let's look at the top left-hand corner.
19 Do you see where it says "SDK events"?
- 20 **A.** Yes.
- 21 **Q.** That would include custom app events transmitted to Meta
22 through the Facebook SDK; correct?
- 23 **A.** I don't know if I'd put it exactly that way.
- 24 **Q.** Well, it says "SDK events"; correct?
- 25 **A.** It does say "SDK events," yes.

1 Q. And SDK events would include custom app events and
2 standard app events; right?

3 A. In isolation, yes. With respect to this diagram, I
4 wouldn't describe it in that way.

5 Q. Now, it appears that there are a bunch of arrows, and
6 these arrows represent where the data flows; is that right?

7 A. That is correct.

8 Q. And if you follow the arrows around, there's a big arrow
9 that leads to the ads delivery system. Do you see that?

10 MR. CANTY: If we can pull it out just a little bit.

11 BY MR. CANTY:

12 Q. Do you see the big orange arrow that goes all the way
13 around and winds back up at the ads delivery system?

14 A. I do see that arrow, yes.

15 Q. And this represents the SDK events data flowing around
16 Meta's system but ultimately ending up at Meta's ad delivery
17 system; is that right?

18 A. This arrow isn't specific to the SDK events. I don't know
19 if I'd describe it in that way.

20 Q. Well, the arrows trace from the SDK events on the left
21 side. If we follow that all the way around, it ultimately
22 winds back up at the ads delivery system; correct?

23 A. The arrow does, but I don't think it represents what you
24 describe it to represent.

25 Q. Well, this is a Meta document. I'm just following the

1 arrows.

2 The arrows go from SDK events all the way around and
3 ultimately wind back up at the ads delivery system.

4 That's what this shows; correct?

5 **A.** I can see the -- part of those arrows, yes.

6 **Q.** And you previously testified in your deposition that
7 Meta's ad delivery system is the same team responsible for the
8 content delivery optimization system that we discussed
9 previously; right?

10 **A.** Broadly speaking, yes.

11 **Q.** And if we were to plug in Flo custom app event data in
12 this diagram, it would show that the Flo custom app events
13 would ultimately wind up at Meta's ad delivery system; right?

14 **A.** At least as -- this diagram is a summary of the systems,
15 and it actually refers to a specific way that SDK events are
16 used.

17 Actually, as this diagram is explained, this shows SDK
18 events going to events described and then to labels. That is a
19 particular usage for which only standard events were used.

20 **Q.** I know, but I'm asking you about the custom app events.
21 The custom app events ultimately wind up at the ad delivery
22 system. That was your testimony; correct?

23 **A.** Are we still describing the diagram?

24 **Q.** I'm asking in general. Well, we can use the diagram.

25 Does the diagram show that?

WOOLDRIDGE - DIRECT / CANTY

1 A. That -- I don't believe that is described on this
2 particular diagram.

3 Q. As you sit here today, are you aware that -- that custom
4 app events are used in the ad delivery?

5 A. Custom app events are used in the ad delivery system.

6 Q. Thank you.

7 A. It's just not shown on this diagram.

8 Q. Now, were you aware --

9 Well, let me ask you something: When were you first aware
10 that Meta may be receiving sensitive health data from the
11 Flo Health app?

12 A. I was made aware that Meta could be receiving potentially
13 sensitive information from this particular app sometimes around
14 2019.

15 Q. Were you aware in 2018 that there were concerns that Meta
16 generally may be receiving sensitive health data from apps that
17 were using the SDK?

18 A. I wouldn't put it that way, no.

19 Q. How would you put it?

20 A. Meta had identified the risk that apps could send
21 potentially sensitive health information and have described
22 those risks.

23 Q. They identified. And how early did they identify those
24 risks that you were aware of?

25 A. I mean, the business tools terms in their preceding

1 versions have always said not to send health information, so
2 presumably that long.

3 Q. That's not what I'm asking. When did you become aware or
4 when were you --

5 Well, let me ask you this: When did you become aware that
6 there was a risk that Meta may be taking in through custom app
7 events sensitive health data?

8 You described there's a risk. When did you first know of
9 that risk?

10 A. So I became aware that -- of the risk that Meta could
11 potentially be taking in such data when there were allegations
12 that Meta may have been taking in such data.

13 Q. Did you know as early as 2016 that there was a risk that
14 you may be taking in sensitive health data?

15 A. I wouldn't put it that way, no.

16 Q. What about 2017?

17 A. Again, I wouldn't put it that way.

18 Q. How would you put it?

19 A. Meta was aware that there was the potential that apps
20 could send potentially sensitive information, and it took steps
21 by writing terms saying "Don't send us potentially sensitive
22 information."

23 Q. Did anyone at Meta suggest that you look at specific apps
24 to make sure that you weren't, in fact, taking in sensitive
25 health data and profiting off of it by putting it into your

1 machine learning system?

2 **A.** I wouldn't have been aware of such specific conversations.

3 **Q.** But you could have said something; correct?

4 **A.** At the time I was working on unrelated things, but I --
5 again, Meta had identified the potential that apps could send
6 this, and as we've described, it took steps by writing terms
7 that -- I think it started as a two-page or shorter document,
8 among which it included saying "Do not send us health
9 information."

10 **Q.** Right, but my question to you is did anybody -- did you
11 ever hear anybody say, "We need to do more. We need to
12 actually investigate whether or not we're getting this data and
13 we have to stop taking it in"?

14 Did you ever have a conversation with anybody in 2016,
15 2017, 2018, or 2019 to that effect?

16 **A.** In 2019, as soon as somebody suggested that apps may
17 actually be sending potentially sensitive information to
18 Facebook, yes, we took action; and I believe that's been
19 discussed extensively.

20 **Q.** But you knew as early as May of 2018; isn't that right?

21 **A.** We're describing different things.

22 **Q.** I'm just asking you whether or not you knew as early as
23 May of 2018 that you may be taking in sensitive health data.

24 Were you aware of that?

25 **A.** No.

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1 Q. All right. I have what's been marked as
2 Trial Exhibit 235, in evidence.

3 MR. CANTY: May I have that presented to the witness.

4 BY MR. CANTY:

5 Q. I'd like to go to the middle of the page where it says
6 Number 4, and if you look right before Number 4, one line
7 above, it indicates that this is going to you and a number of
8 other individuals at Meta; correct?

9 A. I was mentioned on the preceding item, yes.

10 Q. And the next line it says --

11 MR. CANTY: If we could just scroll up to the date,
12 please.

13 BY MR. CANTY:

14 Q. This was Charlotte Narvaez on May 4, 2018.

15 Do you see that?

16 A. I see that.

17 Q. Okay. And then down below it says (as read):

18 "Context. Today advertisers can inadvertently
19 or intentionally send sensitive information --
20 passwords, PII, Social Security numbers, health info,
21 et cetera -- in custom data fields via website, app,
22 and offline events."

23 Do you see that?

24 A. I see that.

25 Q. And then the next sentence says (as read):

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1 "This poses risks, as we are unable to cleanly
2 delete data, as well as policy and PR issues."

3 Do you see that?

4 **A.** I see that.

5 **Q.** So you were made aware as early as May of 2018 that this
6 was a risk; correct?

7 **A.** That the potential existed, yes.

8 **Q.** Did you ever say to anybody, "If we're collecting health
9 data, it needs to stop. We have to take affirmative steps to
10 make sure that we're not collecting this data"?

11 **A.** I mean, as we discussed in 2019, once somebody said
12 somebody could actually be sending us potentially health
13 information, we had discussions investigating the potential and
14 addressing it.

15 **Q.** No, that was bad press. This was back in -- this was
16 written all the way back in May of 2018.

17 I'm asking what you did when it was only internally known
18 at Facebook, not when outside people started asking questions.

19 Did you suggest that you stop taking in health data or
20 take affirmative steps at Meta to stop the collection of this
21 health data?

22 **A.** Sorry. I think you're mischaracterizing this document.

23 **Q.** Well, the document says advertisers can inadvertently or
24 intentionally send sensitive information, including medical
25 info, in custom data fields. And then it says "This poses

1 risks, as we are unable to cleanly delete data as well as
2 policy and PR issues."

3 When you saw this, when you were made aware of this, did
4 you say it's not enough for us to simply tell these app
5 developers to not send it to us; we have to do something at
6 Meta; we cannot be collecting through the SDK these sensitive
7 health answers?

8 **A.** I mean, it literally has as the next sentence, it is
9 acknowledging the potential risk that people could share
10 information with us, and it is directly saying we should build
11 systems to make sure that they don't inadvertently send such
12 information to us.

13 **Q.** But that never happened with respect to health information
14 until 10 months after this class period ended in December of
15 2019; correct?

16 **A.** The health system was built after that, yes.

17 **Q.** Were you aware that one of the concerns about stopping the
18 collection of this type of data would have a financial impact
19 on Meta?

20 **A.** I -- wouldn't characterize things in that way, no.

21 **Q.** You wouldn't characterize it as that?

22 **A.** No.

23 **Q.** Did anybody that you know at Meta talk about the risks of
24 cutting back on collecting this data having a revenue impact on
25 Meta?

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1 **A.** I don't specifically recall such conversations, no.

2 **MR. CANTY:** May I have a moment, Your Honor?

3 **THE COURT:** Yes.

4 (Counsel conferring.)

5 **MR. CANTY:** All right. If I can go to back to that
6 document. This is 235.

7 **BY MR. CANTY:**

8 **Q.** And if we go to the middle, back to Number 4. If you keep
9 reading, it says -- do you see where it says "measure impact of
10 dropping custom data"?

11 **A.** I do see that.

12 **Q.** That -- did you understand that to mean that there would
13 be a financial impact on Meta if they dropped the custom data?

14 **A.** It describes measuring the impact of dropping custom data.
15 It doesn't imply there's an impact.

16 **Q.** Well, what kind of impact would it have?

17 **A.** I wouldn't know, but it is describing something distinct
18 and different from what we've mentioned above.

19 **Q.** And, in fact, if there's less information for the machine
20 learning system to ingest, it may produce information that's
21 less valuable to advertisers; correct?

22 **A.** It's a complex system, but potentially.

23 **Q.** Okay.

24 **MR. CANTY:** May I have what's been marked as
25 Trial Exhibit 374 for identification just to be shown to the

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1 witness?

2 MR. CLUBOK: Objection. Can the document be taken
3 down?

4 MR. CANTY: I'm just showing it to the witness.

5 THE COURT: What are we doing?

6 MR. CANTY: I'm just showing this document to the
7 witness.

8 THE COURT: Oh. That's fine.

9 BY MR. CANTY:

10 Q. Can you look at the second page --

11 MR. CLUBOK: Objection to it being on the screen.

12 THE COURT: You should take that down.

13 MR. CANTY: It's not being shown to the jury. Just to
14 the witness.

15 THE COURT: Just turn that off.

16 THE WITNESS: I have a paper copy.

17 THE COURT: What exhibit is this?

18 MR. CANTY: 374.

19 THE COURT: 374. All right. Go ahead.

20 BY MR. CANTY:

21 Q. I'd like you to take a look at page 2 at the top of the
22 page with the -- I'll just say the -- read under --

23 MR. CLUBOK: Objection. 602.

24 THE COURT: I thought this was on your list of --

25 MR. CANTY: This was not agreed to. This is just

1 marked for identification.

2 **THE COURT:** Well, why don't you --

3 What are you doing with this? Refreshing?

4 **MR. CANTY:** Yes.

5 **THE COURT:** Well, ask the question first and see if
6 it --

7 **BY MR. CANTY:**

8 **Q.** Were you aware whether or not there were concerns about
9 revenue impact in dropping the custom app events back in April
10 of 2018?

11 **MR. CLUBOK:** Objection, Your Honor. 602.

12 **THE COURT:** Overruled.

13 **THE WITNESS:** Should I be looking at the document to
14 answer that or not?

15 **THE COURT:** No, no. Just he's asking a question.
16 Just put the document aside. Think back in your mind.

17 **THE WITNESS:** Yeah. So I don't recall such concerns,
18 no.

19 **BY MR. CANTY:**

20 **Q.** Okay. I'd like you to take a look at this document and
21 see if this refreshes your recollection as to whether or not
22 you had any knowledge as to whether or not there were concerns
23 about removing custom app events having an impact on revenue.

24 **THE COURT:** What page are we looking at?

25 **MR. CANTY:** If you look at page 2 at the top under the

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1 first heading.

2 **THE COURT:** Okay. Don't read it. Just read to
3 yourself and see if that helps you remember. Maybe it does,
4 maybe it doesn't.

5 (Witness examines document.)

6 **THE WITNESS:** So I have only been shown this document
7 within the last week.

8 **THE COURT:** Here's the question: Does it help you
9 remember? If it doesn't, you can say so.

10 **THE WITNESS:** It does not.

11 **THE COURT:** Okay.

12 **BY MR. CANTY:**

13 **Q.** I'd like to look at Exhibit 104R, in evidence.

14 Mr. Wooldridge, I'd like to turn to the health data
15 integrity system.

16 That filtering system was implemented in December of 2019;
17 correct?

18 **A.** The health filtering system launched in December 2019,
19 yes.

20 **Q.** And that was some nine to ten months after the end of the
21 class period, which ended on February 28, 2019?

22 **A.** Approximately, yes.

23 **Q.** And you previously testified that this system was built in
24 response to being made aware that the Flo app was sending
25 potential health-related information to Facebook; correct?

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1 A. It was built once Facebook was aware that apps could be
2 sharing potentially unwanted information, including potential
3 health information through the business tools, yes.

4 Q. As you sit here now, are you aware that Flo Health was
5 actually sending sensitive health data to Meta during the class
6 period?

7 A. I don't think I can make a determination on if it was
8 sensitive or not.

9 Q. Well, do you consider it sensitive health data?

10 A. Again, I don't have the -- what the context to understand
11 or interpret what it means, but so far as our systems exist
12 today, they would filter it.

13 Q. So your systems now would consider it sensitive health
14 data?

15 A. Our systems would consider it potentially sensitive data.
16 They apply, you know, a broad brush to filtering out
17 information.

18 Q. So I'm asking you: As you sit here today, do you consider
19 where a woman is in her menstrual cycle to be sensitive health
20 data?

21 A. I don't know if I'm in a position to make a determination
22 of that, but, again, our systems would filter things like that.

23 Q. I'm not asking about your systems. I'm asking you, as a
24 human being, sitting here today on the 30th of July, do you
25 consider whether -- where a woman is in her menstrual cycle to

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1 be private health information?

2 **A.** I don't see that being a reason to share that with
3 Facebook through the business tools. I don't think it should
4 be.

5 **Q.** I'm sorry. I didn't hear your answer.

6 **A.** I do not think such information should be shared with
7 Facebook through the business tools.

8 **Q.** Okay. Again, not what I asked you. I'm just asking
9 you -- and if you can't answer it, tell me you can't answer it.

10 As you sit here today, do you consider, Tobias Wooldridge,
11 where a woman is in her menstrual cycle to be private, intimate
12 health data?

13 **A.** I think it depends on the person. It is their
14 information, and they can make choices as to if and how they
15 share it.

16 **Q.** And what about if they're pregnant? Would you consider
17 that private health data?

18 **A.** Again, I think this is up to the person to determine if
19 and how they share such information.

20 **Q.** Well, say a woman didn't want her employer to know that
21 she was pregnant. She would consider that private health data;
22 right?

23 **A.** I mean, she definitely may consider it private. And,
24 again, it is on her to choose if and how to share it.

25 **Q.** It's certainly confidential, though?

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1 A. I admittedly don't know the distinction between that and
2 the word "private."

3 Q. Okay.

4 You -- as a software engineer, you -- Meta could have
5 disabled the Flo app's access to the Facebook SDK; correct?

6 A. Meta has mechanisms in place that could be used to block
7 data sent through a particular app.

8 Q. Okay. But what I'm asking is Meta could have said to Flo,
9 "You're forbidden from using our SDK," at any time; correct?

10 A. Yes.

11 Q. And at any time during the class period -- 2016, 2017,
12 2018, 2019 -- Meta could have disabled Flo -- the Flo app's
13 access to the Facebook SDK if they determined that they were
14 failing to comply with its business tools terms; right?

15 A. Potentially, though it possibly would require the
16 implementation of a system to do so.

17 Q. But it can be done? As a software engineer, you could do
18 that; right?

19 A. With infinite resources, a lot of things can be done.

20 Q. So it can be done?

21 A. Yes.

22 Q. And Meta chose not to do that at all during the class
23 period; right?

24 A. Meta did not disable Flo's app from sending app events
25 during, you know, the class period.

WOOLDRIDGE - CROSS / CLUBOK

1 **MR. CANTY:** Thank you.

2 I have no further questions.

3 **THE COURT:** You're up.

4 **MR. CLUBOK:** Your Honor, we have an agreement -- and
5 I'll try to get the numbers right. Mr. Canty will catch me if
6 I get them wrong -- to admit Exhibit 110 in its entirety. It
7 is an electronic file, though, Your Honor, so we may either
8 have to use a native file or we have a hard copy that's very,
9 very big and unwieldy, so we may use excerpts from that.
10 That's 110.

11 We also have agreed to admit Exhibit 404, Exhibit 426, and
12 426A. I may refer to Exhibit 536, but it's already in
13 evidence. Exhibit 627A, we've agreed to admit. Exhibit 1046,
14 1046B, Exhibit 1271. And then, Your Honor, Exhibits 1241 and
15 1247 are also massive coding files which we may refer to
16 excerpts.

17 **THE COURT:** Okay. Any objection?

18 **MR. CANTY:** No objection, Your Honor.

19 **THE COURT:** All right. Go ahead.

20 (Trial Exhibits 110, 404, 426, 426A, 627A, 1046, 1046B,
21 and 1271 received in evidence.)

22 **BY MR. CLUBOK:**

23 **Q.** Mr. Wooldridge, start over a little bit.

24 First of all, can you tell the jury where you're from.

25 **A.** I'm from Adelaide, which is a city in south Australia.

1 Q. And you've testified you're a software engineer at Meta;
2 right?

3 A. Right.

4 Q. How senior are you amongst all the software engineers in
5 all of Meta?

6 A. Yeah. I'm senior already. I'm within roughly the top
7 1 percent of engineers at Meta.

8 Q. How do you know you're within roughly the top 1 percent of
9 the engineers at Meta?

10 A. We have an internal concept called levels that don't have
11 titles but correspond to seniority.

12 Q. And, sir, I'm going to ask -- and I'm bad at this too --
13 if you could speak as loudly and slowly as possible. I take it
14 you weren't born -- well, you said you were from Australia;
15 right?

16 A. Right.

17 Q. So if you could speak loudly and slowly as possible, that
18 would be great.

19 What was your educational background?

20 A. I have a bachelor's of software engineering with honors
21 first class.

22 Q. Before working at Facebook, where did you work?

23 A. Throughout high school I worked on a casual basis for a
24 web development company. They now call themselves a startup
25 that sort of everyone does.

1 After that I did internships at IBM and Google.

2 **Q.** Did you receive job offers from both of those
3 organizations?

4 **A.** Yes.

5 **Q.** And you were asked about your role at Facebook, and I
6 think you were asked if you have a title. Does Facebook have
7 titles in the engineering department?

8 **A.** No. Generally, most people have the title of just
9 software engineer.

10 **Q.** Is there anything that they refer you -- they refer you
11 as, if it's not even a formal title but some other description
12 of your seniority and what you do at Meta?

13 **A.** Yeah. The role I play or the archetype I have would be
14 described as uber tech lead, which roughly means tech lead of
15 tech leads.

16 **Q.** So you're the tech lead of tech leads. Can you tell the
17 jury some of the tech leads who fall your uber tech lead role?

18 **A.** Yeah. So there's various people I work with who are
19 responsible for products like the Meta pixel and conversions
20 API and all of signals integrity and various other privacy
21 initiatives we have within ads at Meta. And in some way,
22 shape, or form, you know, I support these engineers myself.

23 **Q.** Okay. And we'll come back and explain some of those
24 phrases, but I want to ask you specifically: Have you had a
25 tech role with respect to the SDK?

1 **A.** Yeah. Most recently I was overseeing the implementation
2 of certain signals integrity-related features to it.

3 **Q.** And by overseeing implementation, do you mean actually
4 supervising engineers writing code and reviewing their code
5 that's going to go into the new version of the SDK?

6 **A.** Yeah. I was writing the technical designs and then
7 reviewing the code that people implemented.

8 **Q.** Okay. Now, you talked -- you said one of the tech lead
9 responsibilities is for signals integrity.

10 I want to -- and there was a document you were showed by
11 Mr. Canty. I don't know if everyone caught it, but at the top
12 it said "Signals FYI."

13 Do you remember that?

14 **A.** Yes.

15 **Q.** Okay. Can you explain to the jury what exactly Meta means
16 when they talk about signals?

17 **A.** Within this context, signals refers to the product area
18 that owns products such as, you know, the app events
19 functionality included within the Facebook, now Meta, SDK, as
20 well the Facebook pixel and conversions API. Essentially
21 mechanisms that, you know, advertisers and developers use to
22 transmit information to Meta.

23 **Q.** Why would advertisers transmit information to Meta? For
24 what purposes do they do that for?

25 And let's for now focus on the class period unless I say

1 otherwise, which was, again, November 1 2016, through
2 February 28, 2019.

3 During that time period, were you familiar with why
4 advertisers would send Meta signals?

5 **A.** Yeah, I was.

6 **Q.** Okay. Can you tell the jury why?

7 **A.** So typically people share information with Meta because
8 they want to use products and services provided by Meta and as
9 a portfolio of those in different use cases.

10 **Q.** What kind of use cases would businesses have for signals
11 that are being sent to Meta?

12 **A.** Yeah. So at the time, the biggest ones would have been
13 either you want to use that information in your ads, such as,
14 you know, in ads targeting or ads measurement, or you want to
15 get analytics and insights describing how people may be using
16 your app or your website.

17 **Q.** Okay. Let's break each of those down.

18 First of all, I think you said targeting in reference to
19 ads. What is ads targeting in this context?

20 **A.** Yeah. Ads targeting is where information -- you know, an
21 advertiser decides to say, "I want to show my ad to these
22 particular people who have these particular accounts," or "I
23 don't want to show my ads to these particular accounts."

24 So -- gosh. The example that comes to mind is if you have
25 already installed an app -- I mean, firstly, they're probably

1 wasting their money showing ads to somebody saying "Please
2 install my app." But secondly, you probably don't want ads
3 saying please install an app if you already have that app
4 installed. And so that would be a use case of targeting.

5 **Q.** And what if you did have an app installed? What would be
6 a typical use case for advertisers to target someone who they
7 know has already installed their app?

8 **A.** Yeah. I mean, the simplest example is like maybe you want
9 somebody to buy something in your app, such as a premium
10 subscription or, you know, tokens in a game or a pair of
11 sneakers or something like that.

12 **Q.** And during the class period, could app developers like Flo
13 use the signals to target audiences that they chose?

14 **A.** Yeah. So in that sample I just gave, they'd say, you
15 know, "I only want people who have already installed my app to
16 see the ad saying 'buy this premium service within my app'," and only they could do it.

18 **Q.** Okay. How about measurement? That's the second thing you
19 mentioned. Can you explain to the jury what measurement is in
20 this context?

21 **A.** Yeah. Measurement is -- let's imagine I'm running a
22 billboard ad, you know, on the I5 or the 101.

23 I actually have no idea how many people are seeing that or
24 if people are actually taking any action based on that; right?

25 Measurement is where, after showing somebody an ad on

1 Facebook, an advertiser shares a signal with us saying
2 something like "This person installed this app," or "This
3 person bought this thing." Right?

4 And then we would be able to say in ads manager, which is
5 our main ads product, you know, "Okay. You spent a hundred
6 dollars showing your ad to these people, and off that, you
7 know, maybe 300 people installed your app." And so you have
8 some idea that it's working and, you know, that you're not
9 wasting money.

10 Q. To do either of these, targeting or matching, in
11 conjunction with the signals you get from app developers, does
12 Facebook try to match up device IDs?

13 Or at least during this time period, did they try to match
14 up device IDs to Facebook or Instagram user accounts?

15 A. Yeah. For app event data device ideas, we would have
16 tried matching those to, you know, corresponding Facebook or
17 Instagram accounts to use that to show those people or not show
18 those people those ads.

19 Q. And did Facebook try to keep that a secret?

20 A. No.

21 Q. Okay. The third thing you said that advertisers could do
22 with signals is analytics. Can you explain what you mean by
23 that as it applies to during the relevant time period?

24 A. Yeah. There was a product called Facebook Analytics,
25 which -- you know, when somebody is using your app, you may --

1 you may not even know how many people are using your app. And
2 so Facebook Analytics was a service provided by Meta where if
3 people sent events through the app events part of the SDK, they
4 would be able to see statistics and analytics describing,
5 you know, the type of person that was using the ad. Not things
6 like, you know, "Tobias is using this app," but things like,
7 you know, here are the countries in which people are using your
8 app from. Well, here's the rough age buckets of the people
9 using your app, or this is the type of phone people are using
10 your app on -- right? -- like the model.

11 Things like that that may help you, you know, more
12 thoughtfully design your app.

13 **Q.** So let's be very clear. If an app developer like Flo sent
14 a bunch of custom app event data for Facebook Analytics to
15 process, would Facebook Analytics tell back to Flo the names
16 associated with any actions of individual users?

17 **A.** It would show the names of the actions but never show the
18 names of the users.

19 **Q.** Thank you.

20 And instead, you'd show what? Aggregated anonymized data,
21 like "20 percent are in Brazil" or "10 percent are in New York"
22 or whatever?

23 **A.** Yeah, exactly like that.

24 **Q.** We've talked about signals. You said that you were the
25 tech lead for the signals -- or I think you currently are the

1 tech lead for the signals integrity team?

2 A. Yeah. I -- uber tech lead.

3 Q. Okay. Can you explain to the jury what the signals
4 integrity team is at Meta?

5 A. Yeah. There was an example given -- I was reading it in
6 the transcripts -- of how the app SDK is preaddressed envelopes
7 that are being shared to Meta.

8 The signals integrity team is a system that implements
9 technical measures to make sure that those envelopes that are
10 sent to us don't contain anything we don't want, in addition to
11 our, you know, policies and terms.

12 Q. When was the signals integrity team created?

13 A. People first started talking about establishing this team
14 in late 2017, and the team, you know, was created around then,
15 or early 2018.

16 Q. So even prior to this creation of the signals integrity
17 team, were you aware of whether or not Facebook wanted
18 businesses to share sensitive data with Facebook?

19 A. I mean, we never wanted businesses to share sensitive data
20 with us.

21 Q. Is signals integrity work a priority at Facebook?

22 A. Yeah. I have personally spent the last several years,
23 you know, spending the majority of my time in this space.

24 Q. Is it just you working on this?

25 A. No. There are lots of people working on this.

1 Q. Why is signals integrity a priority for Facebook?

2 A. We don't want potentially sensitive data. We think that,
3 you know, there's practically no good reason to send it from
4 the perspective of our ad systems. There is also -- you know,
5 I personally don't want to be here. I would rather be shipping
6 valuable products for advertisers.

7 Q. By "here," you mean in this courtroom?

8 A. Specifically here. But, you know, I -- we don't want this
9 information. We think it would potentially controvert users'
10 privacy and like, you know, advertisers who share information
11 with us have a responsibility not to share, you know,
12 potentially sensitive information with us.

13 Q. Mr. Canty kept asking you questions about the financial
14 impact of blocking all kinds of data.

15 Did anybody ever tell you stop your work, don't do it
16 because of the financial impact to Facebook?

17 A. No.

18 Q. Let's talk about what that work actually was. Okay?
19 Let's talk about what specifically you did and the signals
20 integrity team did, and I'm going to try as best I can to ask
21 you to describe it chronologically. Okay?

22 So even before the signals integrity team was established,
23 had you personally done any work to try to prevent Facebook
24 from receiving sensitive health care information through
25 signals?

1 **A.** Yeah. In 2017, we were launching various features for the
2 Facebook pixel, which I had oversight for at the time.

3 **Q.** And just let me pause you there.

4 Can you explain to the jury what the Facebook pixel is in
5 general layman's terms, if you can?

6 **A.** Yeah. Sorry.

7 The Facebook pixel is -- it's essentially the analog of
8 the app events part of the SDK but for websites. So you could
9 send events, like somebody purchased something, to Facebook,
10 you know, after they purchase something on, you know, the Nike
11 website or something like that.

12 **Q.** Okay. So continue explaining what work you were doing in
13 connection with the pixel to try to stop sensitive health care
14 data from coming to Meta.

15 **A.** Yeah. So at the time we were launching various features
16 for the Facebook pixel, and we made the decision for some of
17 those features not to enable them for health and other
18 categories of advertisers just out of an abundance of caution.

19 **Q.** Is this a technical control that you yourself supervised
20 and implemented?

21 **A.** I implemented it.

22 **Q.** Did you ever apply this technical safeguard to the SDK?

23 **A.** These particular features we were launching did not have
24 analogs on the app side or the SDK side.

25 **Q.** Did that ever change?

1 **A.** I think at some point after the relevant time period, yes,
2 one of these features may have launched in the app, and we did
3 extend those limitations to that.

4 **Q.** Okay. So let's get back to the signals integrity team.

5 It's late 2017. They're putting a team together. How did
6 you learn that this signals integrity team was being formally
7 launched?

8 **A.** Yeah. I mean, signals is only so big. I -- you know, I
9 was working on the Facebook pixel at the time, and, of course,
10 people -- you know, I was mentioned in a post, mentioning the
11 signals -- mentioning some of the work that they would later
12 do. And later I communicated with people because they would
13 seek me out asking questions about, you know, how do we
14 implement this thing for the Facebook pixel and for the signal
15 systems.

16 **Q.** So once the signals integrity team was formally
17 established in late 2017 or early 2018, what was the first
18 project they tackled?

19 **A.** So they -- sort of as we saw in that post, they had a
20 bunch of different things they wanted to tackle. The first one
21 was probably the technically easiest from an implementation
22 perspective, which was -- I think it was in August of 20- --
23 April of 2017, that the password filter was launched. So if --
24 dare I say -- thoughtless web developers installed the pixel
25 and for whatever the reason, generally when you submit a form

1 on a website, it doesn't actually show you the input to the
2 form in the URL. That's one way to implement a form.

3 Another way to implement a form, like a login form
4 containing a username and password, would be to call -- to use
5 what's called "get parameters," which would appear in the URL,
6 like when you search for something.

7 If a web developer implemented that login form in this
8 way, the password could inadvertently be transmitted to
9 Facebook. We absolutely do not want that. And so the first
10 thing that was implemented was if people sent parameters that
11 say something like "password" to Facebook, you know, we would
12 detect and destroy that information.

13 Q. The same way Mr. Canty said, "Well, theoretically
14 healthcare information could possibly make Facebook money,"
15 isn't it true that theoretically, password information could
16 make Facebook money if they used it in their content ad system
17 or otherwise?

18 A. I don't know if it matters. There is no circumstance
19 under which we would tolerate having that data.

20 Q. And when was the password detection system launched?

21 A. Yeah. So that was April 2017.

22 Q. Okay. April 2017, you've already -- you have already
23 launched -- and you, Meta -- has already launched the password
24 detection system?

25 A. Correct.

1 Q. Okay. I want to briefly show you now -- because we're
2 picking up in the timeline the document that Mr. Canty did show
3 you, and that was Exhibit 235.

4 This is a document dated May -- May 4, 2018; right?

5 A. I see that.

6 Q. So by the time this document is created, you've --
7 Facebook has already launched the password detection system to
8 filter out passwords from app developers who might accidentally
9 or intentionally send them; right?

10 A. Yeah.

11 Q. Okay. So this says "Signals FYI."

12 And by the way, what -- there's a lot of stuff on this
13 document, a lot of names. Can you just describe briefly what
14 this document is and how it's used at Facebook?

15 A. I mean, this was a workplace post communicating various
16 updates on progress on various projects.

17 Q. And if you look down, Mr. Canty tried to refer you to the
18 stuff that comes after Number 4.

19 If you look before Number 4, you see some names, including
20 yours, in the line above. Is that where your name appears in
21 this document?

22 A. Yes.

23 Q. And so what is that referring to?

24 A. Yeah. That means I was working on the project listed or
25 like, you know, associated to the project listed in advance of

1 the one we were talking about earlier.

2 Q. So the Number 3?

3 A. Correct.

4 Q. Okay. Nevertheless, you had access to this document at
5 the time; right?

6 A. Yeah. I would have got a notification when it was posted.

7 Q. Okay. So moving on to Number 4, some -- there's
8 discussion of sensitive data detection and retention and
9 context, and then there's a brief description that Mr. Canty
10 already read into the record.

11 Do you see that?

12 A. Yes.

13 Q. And do you see where it says "Today advertisers can
14 inadvertently or intentionally send sensitive information," and
15 the very first concern is "passwords"?

16 Do you see that?

17 A. Yeah, I see that.

18 Q. So whoever writing this apparently hasn't gotten the memo
19 yet that passwords, at least, has already been addressed.

20 MR. CANTY: Objection.

21 THE COURT: Just ask question.

22 Hang on. He needs to ask a question, not just read the
23 answer.

24 BY MR. CLUBOK:

25 Q. Did anybody --

1 First of all, do you know exactly who typed in those
2 words?

3 A. This -- I don't know who typed in those words, but the
4 post was made by Charlotte.

5 Q. Okay. And did -- did anyone ask you in May if you've
6 already checked off the password detection filter off the to-do
7 list?

8 A. It actually mentions in the post that it was launched in
9 mid-April.

10 Q. Ah. It goes on to say -- oh, thank you.

11 So if you continue reading, it -- it's identified these
12 issues and then it goes on to say and you pointed out (as
13 read):

14 "Password detection launched mid-April."

15 Do you see that?

16 A. Yeah.

17 Q. Okay. And throughout the time period from this post
18 continuing through February of 2019 and beyond, were there
19 similar discussions, either in writing or orally, about trying
20 to identify risks of sensitive information coming in?

21 A. Yeah. We continue to try to identify risks and address
22 them.

23 Q. So let's talk about the next step.

24 After the password detection has been launched, what's the
25 next thing the signals integrity team --

1 And actually, let me just -- I beg your pardon. You said
2 password detection was technically easiest because you could
3 look for the word "password" --

4 **A.** Right.

5 **Q.** -- is that right?

6 Does that mean it's -- just because it was technically the
7 easiest, does that mean it's the least important in the
8 determination of the signals integrity team?

9 **A.** No. I think we'd all be offended if, you know, web
10 developers were sending our passwords to other websites.

11 **Q.** And by the way, were you aware specifically of a web
12 developer doing that?

13 **A.** I was not.

14 **Q.** But you were aware that theoretically there was a risk of
15 that, and that's why you developed the solution?

16 **A.** I mean, I've made websites before. I understand how you
17 can do so incorrectly in a way like I just described.

18 **Q.** Okay. So what's the next project the signals integrity
19 team took on?

20 **A.** After the password filters were launched -- and, again,
21 that was an easy starting block -- the team continued to invest
22 and build the PII filters.

23 **Q.** What do you mean by "PII filters"?

24 **A.** So this is -- PII stands for personally identifiable
25 information. An example of that which people could share with

1 us would be like if there was a URL or, you know, if the link
2 for the page that the pixel was firing from included somebody's
3 e-mail address. Like we just talked about, the password.
4 Maybe there was both password and e-mail address. We'd want
5 neither in that URL.

6 Q. And what other sensitive data? It talks here about "SSN."
7 What did you understand that to mean? Did you ever use that
8 phrase, "SSN"?

9 A. Yes. I'm Australian, but I do work here in America, so,
10 yes, SSN is Social Security number. It's something else which,
11 again, there's just no valid reason to send to Meta through the
12 business tools.

13 And so that -- actually, so far as the implementation is
14 concerned, I look at SSNs as PII, and it's the same system that
15 would have filtered out all of these things.

16 Q. At the time, was Facebook -- even though they were
17 identifying these risks, did they specifically know some app
18 developer was sending it inadvertently or intentionally, Social
19 Security numbers?

20 A. Not that I'm aware of, no.

21 Q. Nevertheless, you identified the issue and then did what?

22 A. We built systems to detect, and if it was transmitted to
23 us, filter it out.

24 Q. When did you establish the filter system for -- that
25 you've just described?

1 **A.** The PII filter launched in its expanded capacity sometime
2 around October of 2018.

3 **Q.** And once it was launched, what was it at least intended to
4 block?

5 **A.** Yeah. So, again, this would have been all flavors of PII,
6 like e-mail address, you know, people's names, Social Security
7 numbers, things like that.

8 **Q.** Did the PII filter try to block credit card numbers?

9 **A.** I don't know if specifically it did then, but it
10 definitely does now and probably did then.

11 **Q.** Did you -- well, that's interesting. Did the PII filter
12 stay the same as the way it was when you launched it in October
13 of 2018?

14 **A.** No. We -- there's a lot of -- there's like hundreds of
15 thousands of apps and websites, probably millions, that are
16 sharing information with Meta.

17 You know, we apply the filter to all of them. People
18 could find creative ways to do things incorrectly and send us
19 information that we don't want.

20 **Q.** So you've launched in October of 2018. Is there anything
21 because of the launch of this that communicates the operation
22 of this PII filter to app developers like Flo?

23 **A.** Yeah. So around that time we implemented e-mails that
24 said, you know, if somebody transmitted something that was
25 detected and scrubbed by our PII filter to us, we would send

1 them an e-mail guiding them to, you know, check on their
2 installation and make sure they weren't sending --

3 Like, you know, in the case of people having a website
4 where you log in and it shares password with Meta, obviously we
5 don't want that, obviously the user doesn't want that, and
6 obviously you shouldn't be doing that. So you should check
7 your implementation and make sure you're not sharing it with
8 us.

9 **Q.** Well, if the PII filter triggered, why didn't Meta then go
10 look at the data and try to go developer by developer to see
11 what triggered the PII filter and to see if it was fixed? Why
12 didn't Meta do that?

13 **A.** I mean to -- again, using that addressed-envelope analogy
14 from earlier, you can sort of reason about these filters as an
15 x-ray scanner and an incinerator.

16 **MR. CANTY:** Objection. Nonresponsive.

17 **THE COURT:** What was the objection?

18 **MR. CANTY:** It's nonresponsive to the question.

19 **THE COURT:** Oh. Just go ahead.

20 **THE WITNESS:** So, I mean, after the point that the
21 data's been incinerated, you're not able to look at what it
22 originally was. Right? Like -- and so actually looking at
23 that data and making a determination of is this actually
24 sensitive or not, you know, would be beyond our means, because
25 we got rid of it because we didn't want it.

1 BY MR. CLUBOK:

2 Q. So the filter triggers the data. If it triggers one of
3 the filters, it's deleted, destroyed?

4 A. Yeah.

5 Q. And then Meta has no ability then to see it, but instead
6 they send a letter to the developer saying check your data on
7 your side; is that right?

8 A. Correct. They're in the best position to evaluate what it
9 actually is.

10 Q. When Facebook launched this PII filter in October '18,
11 we've heard a lot about reusable code or open source code. Was
12 there any open source code or reusable code available to Meta
13 so they could just pull a PII filter off the shelf and plug
14 that into their system?

15 A. Not that I'm aware of, no.

16 Q. Are you aware of any other company who, prior to Meta,
17 installed a PII filter from any engineering conference or any
18 of your coding friends or any open source notices about code?
19 Ever hear of any other company doing it to prior to Meta?

20 MR. CANTY: Objection.

21 THE COURT: You can answer.

22 THE WITNESS: Not for something like this, no.

23 THE COURT: Okay. We're going to take our morning
24 break. We'll be back at about 11:25.

25 THE COURTROOM DEPUTY: All rise.

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1 (The jury leaves the courtroom.)

2 (Proceedings were heard out of the presence of the jury.)

3 (Recess taken at 11:01 a.m.)

4 (Proceedings resumed at 11:33 a.m.)

5 (Proceedings were heard out of the presence of the jury.)

6 **THE COURTROOM DEPUTY:** All rise.

7 **THE COURT:** Let's bring them out.

8 **MR. CLUBOK:** One housekeeping point. I'm currently
9 obviously doing cross, but I'm also doing our direct. We
10 allowed plaintiffs to call Mr. Wooldridge out of turn, and we
11 had agreed that if -- just like if I was doing direct, if
12 I needed to do a short --

13 **THE COURT:** I get it. I understand. One and done.

14 **MR. CLUBOK:** No, Your Honor. What my --

15 **THE COURT:** There are no constraints on the form of
16 your question except don't lead.

17 **MR. CLUBOK:** For sure. My point is just there's a
18 chance I might do redirect after -- so in other words, we --

19 **THE COURT:** That's fine.

20 **MR. CLUBOK:** We've been stopping after the third
21 examination, and I certainly don't want to, but I might do a
22 bit of fourth.

23 **THE COURT:** All right. That's fine.

24 **MR. CLUBOK:** Thank you, Your Honor.

25 **THE COURT:** Plaintiffs, is this your last witness?

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1 **MR. CANTY:** Your Honor, we have one expert.

2 **THE COURT:** Oh, that's right.

3 **MR. CANTY:** And we also have deposition designations
4 that run about 15 minutes and that's it.

5 **MS. SHARTON:** Your Honor, one quick question.

6 Do you prefer a verbal motion for directed verdict right
7 when they rest?

8 **THE COURT:** Yeah.

9 **MS. SHARTON:** Because the jury will be here.

10 **THE COURT:** They leave.

11 **MS. SHARTON:** Once they leave. That's what I mean.

12 Thank you.

13 **THE COURT:** They don't hear that.

14 (The jury enters the courtroom.)

15 (Proceedings were heard in the presence of the jury.)

16 **THE COURT:** Okay. Go ahead.

17 **MR. CLUBOK:** Thank you, Your Honor.

18 **THE COURTROOM DEPUTY:** You may be seated.

19 **THE COURT:** One second.

20 **MR. CLUBOK:** Sure.

21 **THE COURTROOM DEPUTY:** We're back on the record in

22 Civil --

23 **THE COURT:** Okay.

24 **THE COURTROOM DEPUTY:** We're back on the record in

25 Civil 21-757, Frasco versus Flo Health.

1 BY MR. CLUBOK:

2 Q. Mr. Wooldridge, we were trying to develop the chronology.

3 Just to make it crystal clear, when was the password
4 filter launched?

5 A. That was in, I think, April 2018.

6 Q. Okay. And then when was the rest of or the PII filter
7 launched?

8 A. Yeah, the initial launch was around October 2018.

9 Q. Okay. And then thereafter, in November, December, I think
10 we saw one in January, some of these letters went out if an app
11 developer's data triggered the PII filter?

12 A. Right.

13 Q. Okay. I want to talk about other implementations. We
14 haven't gotten yet to February of 2019.

15 But before we get to that, was there anything else that
16 you can think of that Facebook did to try to block signals from
17 coming in regarding information Facebook didn't want?

18 A. Yeah. The other system that comes to mind with respect to
19 2018 is -- we call it the prohibited sources filter, which is
20 there are certain websites which have no valid or legitimate
21 reason to use the business tools and apps.

22 An example would be a website advocating for violent or
23 hate speech, or even a pornography website; right? Like you
24 can't run ads for that on Facebook. We don't want people
25 sharing data from such a website to us for a myriad of reasons,

1 and we blocked those websites from, you know, sending data into
2 our systems.

3 Q. Okay. We also have heard -- I think there was a question
4 or there's been questions about the device IDs that were the
5 IDFAs and the other one for Google that were sometimes
6 transmitted along with event data by app developers.

7 Do you recall those questions?

8 A. I do.

9 Q. And there was a question at some point that was asked,
10 I believe, to Dr. Zervas about whether or not the app developer
11 could, you know, turn off the transmission of that if they used
12 the code from the SDK. I'm paraphrasing it.

13 But just, in your own words, can you explain what controls
14 the advertisers had during this time period to choose whether
15 or not to send the IDFA and the other device ID number along
16 with other custom -- or app event data via the SDK?

17 A. Yeah. Beyond the fact that the SDK is open source and
18 frankly, developers would simply be able to change the code to
19 do whatever they wanted it to do, at the end of 2018 we
20 documented a feature that would let you disable the --
21 you know, would prevent the SDK from connecting the device ID
22 to the events that it was transmitting, and this would be a
23 one-line code change that developers could implement.

24 Q. And you implemented that when?

25 A. It was documented at the end of 2018, so it would have

1 been implemented before that.

2 Q. Okay. So let's talk about February 2019. Did you come,
3 in February 2019, to learn that there was an allegation that
4 Flo Health specifically may have been sending sensitive
5 information to Meta?

6 A. Yes.

7 Q. And prior to learning that, had you ever heard of any
8 specific developer actually sending sensitive health
9 information as opposed to the potential that you all identified
10 that it could happen?

11 A. No.

12 Q. And what happened after you heard about it? What, if any,
13 action did the signals integrity team take?

14 A. Yeah. After Meta became aware that apps could be sharing
15 such potentially sensitive information with Meta, Meta took
16 steps to understand the problem and took steps to implement a
17 filter such that we wouldn't get such data.

18 Q. When did Meta complete these steps?

19 A. I mean, honestly, I don't think they're ever completed.
20 We continue to invest in this.

21 Q. Okay. Well, when did Meta first launch a technical
22 solution that was designed to force advertisers to comply with
23 their contractual agreements?

24 A. Yeah. The first major release of the health filter was in
25 December of that year.

1 Q. Can you explain to the jury how the health filter worked
2 as it was originally launched in December 2019?

3 A. Yeah. There's sort of two components to the filter. The
4 first one is categorizing a website. Part of this is so that
5 we have context with which to apply the second part, and I'll
6 come back to that. But the first one is categorizing a website
7 is -- you know, is this health-related or not.

8 The second part of this is essentially a keyword list, or
9 a block list. We would look for words that could be --
10 potentially be sensitive and, you know, if they were
11 transmitted from an Apple website that we had categorized as
12 health-related, we would filter out that data.

13 Q. Roughly how many words were on the word list when you
14 first implemented the health filter?

15 A. Somewhere in the order of 70,000.

16 Q. 70,000?

17 A. 7-0 thousand.

18 Q. Mr. Canty was asking Mr. Satterfield about particular
19 words. I'll just ask you: Was "pregnancy" included in that
20 70,000-word list?

21 A. Yes.

22 Q. "Pregnant"?

23 A. Yes.

24 Q. "Period"?

25 A. Yes.

1 Q. "Ovulation"?

2 A. Yes.

3 Q. "Menstruation"?

4 A. Yes.

5 Q. "Fertility"?

6 A. I believe so, yes.

7 Q. And even then, by December of 2019, when Facebook rolled
8 out the healthcare side of its filter, at that point had you
9 ever heard of any other company at that point doing anything
10 like this either for PII or for health words?

11 MR. CANTY: Objection.

12 THE COURT: One second.

13 Go ahead. It's fine.

14 THE WITNESS: Not to my knowledge, no.

15 BY MR. CLUBOK:

16 Q. Was there any open source code available? Was there
17 anyone writing about how they had done it or showing the way
18 through code?

19 A. Not to my knowledge, no.

20 Q. Okay. Did -- you said -- I take it the signals integrity
21 team didn't stop in December of 2019?

22 A. No. I mean, we continue to invest in it.

23 Q. Okay. What other things have you done since then?

24 A. Yeah. So after -- the subsequent year, in 2020, we
25 improved the health filtration system by implementing machine

1 learning so that for parameters that may not have been on that
2 block list, you know, we'd still filter them out. You can
3 think you of it almost as fuzzy matching.

4 Q. What does that mean?

5 A. Not looking for exact matches, but rather looking for
6 things, you know, similar but not exactly like them.

7 Q. Is that designed to make the health filter operate more
8 narrowly or more broadly or neither?

9 A. It would make it operate more broadly.

10 Q. And so in other words, is it designed to catch even -- or
11 overbroad in terms of its catching ability for
12 healthcare-related information?

13 A. Yes, it is overbroad.

14 Q. Has the signals integrity team and yourself worked on
15 other projects since to continue to impose technical
16 limitations on the ability to even accidentally get sensitive
17 healthcare information?

18 A. Yeah. Again, we've been investing through this day.

19 Q. By the way, in 2020, when you added machine learning
20 capabilities to the healthcare filter, that was about -- at
21 least a year before plaintiffs had even sued Facebook; isn't
22 that right? In 2021?

23 A. Yeah, it was well ahead of them.

24 Q. And so what's core setup?

25 A. Core setup is a function which we've launched for both the

1 app events part of the SDK and the Facebook pixel -- these days
2 called the Meta pixel -- which restricts how either of those
3 products could transmit, you know, parameters and similar
4 information to Facebook.

5 So, you know, in terms of the app SDK, core setup means
6 that the app SDK will not transmit custom parameters to Meta.

7 **Q.** Why didn't Facebook just earlier blanket-prohibit
8 healthcare-identified websites or apps from transmitting
9 information or otherwise just block out all those words earlier
10 than what it did?

11 **A.** I mean, that would be overkill. There's a lot of good
12 reasons that these apps could use our product. So if we take
13 the Facebook SDK and app events in the Flo Health app as an
14 example, I don't think anybody is suggesting that it's
15 sensitive that people install that app. And so them running an
16 ad saying, you know, "install our app" seems quite reasonable
17 to me; right?

18 And there is obviously legitimate use cases even outside
19 of this particular app. Maybe there is a hospital doing a
20 fundraiser, or other examples, where, again, like, they're
21 health-related, but they have legitimate reasons to use these
22 products. And, you know, it would be kind of crazy to stop
23 people from running fundraisers on the presumption that,
24 you know, they're going to send such unwanted information to
25 us.

1 Q. Were these -- all these technical solutions that you've
2 implemented over the years, have they been easy to build out at
3 Facebook?

4 A. No.

5 Q. Why not?

6 A. I mean, part of this is just the scale at which these
7 systems operate. So, you know, when we started building these
8 systems, we were getting millions of events through either the
9 app SDK or through the pixel a second; right? We need to apply
10 our filtration to every single parameter at every single event
11 coming into our systems.

12 And, you know, if you think about that filter, we have
13 70,000 words on a list, as an example; right? We need to check
14 all of those, to keep that list somewhere in memory so that we
15 can consult it and check did anyone send any of these things.
16 And like for the password matching and the PII matching,
17 there's just a lot of computation there.

18 Q. Did you ever once slow down your efforts because you
19 secretly wanted Facebook to get sensitive health data despite
20 your contractual agreements and the other technical solutions
21 you had developed?

22 A. I mean, literally the first step we took is putting in our
23 terms "Don't send us information."

24 But no, at no point have we ever slowed down this because
25 we may -- we would never want this data.

WOOLDRIDGE - CROSS / CLUBOK

1 Q. Let's look at Exhibit 627A. It's already been admitted.

2 And this is an excerpt of Dr. Egelman's logs that reflect
3 what he claimed may have been sent by Flo to Meta.

4 Do you see Exhibit 627A?

5 A. I see it.

6 Q. Did -- first of all, you're familiar with signals like
7 this that other -- countless other app developers were sending
8 during the same time period?

9 A. Yes.

10 Q. And would Facebook have received code like this with no
11 further context as to what it means?

12 A. We would have received events submitted in this way, and
13 we wouldn't have had context to interpret what those events
14 could have mean.

15 Q. Are you aware of Flo providing Facebook with a key or
16 definitions so Facebook could try to interpret the data and
17 what it means, like Mr. Egelman -- or Dr. Egelman claimed he
18 could do?

19 A. No.

20 Q. Did you ever hear of any advertisers providing Facebook
21 with a key or definitions for their custom parameters
22 associated with their custom app events that were sent via the
23 code provided about by the SDK?

24 A. Not to my knowledge, no.

25 Q. Dr. Egelman said that experts in the field supposedly,

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1 quote, read the traffic capture and make sense of it and
2 supposedly that Meta employs people to do that.

3 Is that true?

4 **A.** No, we don't employ people to do that.

5 **Q.** Set aside anything that's been done in this litigation,
6 but outside the litigation world, during the class period, are
7 you aware of anybody at Facebook ever decompiling or
8 disassembling the Flo app to try to examine the source code
9 like Dr. Egelman did to try to interpret the meaning of Flo's
10 custom app events or custom parameters?

11 **MR. CANTY:** Objection.

12 **THE COURT:** Sustained.

13 **BY MR. CLUBOK:**

14 **Q.** Well, are you aware of anyone at Meta during the 2016 to
15 2019 time frame, outside of litigation, trying to disassemble
16 code to try to figure out what the meanings of custom app
17 events or custom app event parameters meant?

18 **MR. CANTY:** Objection.

19 **THE COURT:** You can answer that.

20 **THE WITNESS:** No, I have heard of nobody doing such
21 things.

22 **BY MR. CLUBOK:**

23 **Q.** Can you -- did Facebook ever reverse-engineer the Flo app,
24 to your knowledge?

25 **A.** Not to my knowledge, no.

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1 Q. Is there a department at Facebook that you're aware of
2 that does anything like that for apps or did anything like that
3 for apps either during the class period or ever?

4 A. No.

5 Q. Let me talk to you about Flo's advertising, because we've
6 talked about different reasons why app developers like Flo send
7 signals, and I think you said advertising, a couple different
8 versions, and analytics. Do you remember that?

9 Let's talk about Flo, and let's look at Exhibit 426, which
10 has been admitted.

11 Can you explain to -- and can you explain to the jury what
12 Exhibit 426 is, please.

13 A. Yeah. This looks like a printout of public documentation
14 for app events.

15 Q. And are these standard or custom app events?

16 A. This is a list of the standard app events.

17 Q. And I think you have a chart that summarized this, which
18 is Exhibit 426A. It's also been admitted into evidence.

19 Can you explain what the jury is seeing on Exhibit 426A?

20 A. Yeah. This looks like a summary of all of the standard
21 app events people can show through the SDK.

22 Q. And Facebook makes this public?

23 A. Yeah. It's in the documentation.

24 Q. Did Flo utilize any of these standard app events to run
25 advertising campaigns during the class period?

1 **A.** Yes.

2 **Q.** Let's look at Exhibit 404.

3 And, actually, before we go to 404, do any of these
4 standard app events encourage --

5 From your perspective, were any of these standard app
6 events designed to encourage developers to send sensitive
7 healthcare information?

8 **MR. CANTY:** Objection.

9 **THE COURT:** Sustained.

10 **BY MR. CLUBOK:**

11 **Q.** Sir, as part of your work in the SDK, are you familiar
12 with Facebook's practice of developing standard app events?

13 **A.** Yes.

14 **Q.** And are you -- have you seen the standard app events
15 before?

16 **A.** Yes.

17 **Q.** Do you work with the standard app events -- have you
18 worked with the standard app events throughout the course of
19 your job?

20 **A.** Yes.

21 **Q.** Have you supervised people who have been in charge of
22 coding the standard app events?

23 **A.** I don't know if I'd say people code them, but I have
24 supervised work related to them, yes.

25 **Q.** Okay. And have you ever heard, in any of your work

1 related to the standard app events, anybody at Meta saying,
2 hey, let's use these, in words or substance, to try to get
3 sensitive healthcare data?

4 MR. CANTY: Objection.

5 THE COURT: Sustained.

6 BY MR. CLUBOK:

7 Q. Let's look at Exhibit 404.

8 Let's look at what -- and what is Exhibit 404?

9 A. So I described how Meta lets people create, you know,
10 targeted ads to people, like I want these people to see my ad
11 or I don't want these people to see my ads.

12 This is a list of mobile app custom audiences created by
13 Flo Health between June 2016 and 2021, which they would have
14 been able to use to say "Show my ad to people matching these
15 criteria," or "don't show my ad to people matching these
16 criteria."

17 Q. Does this document show that Flo used standard events
18 to -- in connection with its advertising campaigns?

19 A. Yeah. The majority of things listed here are standard
20 events.

21 Q. Can you identify the first few you see?

22 A. Yeah. I mean, like FB mobile purchase and FB mobile,
23 you know, activate app.

24 Q. And if you compared 404 to 426A, the chart we just saw,
25 you could match up whether or not Flo was advertising based on

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1 standard events; is that correct?

2 **A.** We should be able to, yeah.

3 The other thing is it starts with FB_mobile, which is a
4 good suggestion it's a standard app event.

5 **Q.** Okay. Well, I see where in row 7 it doesn't start with a
6 FB_mobile. It says Sessions_20.

7 Is that a Facebook standard event?

8 **A.** No. That's a custom event.

9 **Q.** And is that something also, according to the information
10 Facebook has, that Flo might have or did advertise on during
11 the class period?

12 **A.** At minimum, they created a custom audience based on it.

13 **Q.** What's a custom audience? Can you explain that to the
14 jury?

15 **A.** So, again, a custom audience is -- it's sort of a rule
16 saying, you know, when you want to say "Show my ad to these
17 people" or "Do not show my ad to these people," a custom
18 audience is almost how you define "these people." It is,
19 you know, people who have installed my app or people who have
20 purchased something in my app or, you know, other things that
21 we'd see listed here.

22 **Q.** You've carefully reviewed Exhibit 404 in advance of today;
23 correct?

24 **A.** Yes.

25 **Q.** I want to show you Exhibit 1271, and I'm going to ask you

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1 if you can keep 404A in mind. Sorry. Exhibit 1271.

2 1271 was the list of the custom app event names at issue
3 in this lawsuit, and there are 12 listed there.

4 Do you see it?

5 **A.** I see it.

6 **Q.** Have you endeavored to compare 1271 to 404 to see if Flo
7 ever made a custom audience to target ads based on any of these
8 12 custom app event names that are at issue in this lawsuit?

9 **A.** Yeah. You have seen one of these listed in that
10 spreadsheet because they didn't create such custom audiences.

11 **Q.** Okay. Let's talk about advertising a little more, and
12 let's talk specifically about matching.

13 Are you personally familiar with the concept of matching
14 through your work at Facebook?

15 **A.** Yes. This was the part of signals I worked in when I
16 started at the company.

17 **Q.** Okay. So explain to the jury what's matching, as Facebook
18 uses that phrase, in the context of advertising?

19 **A.** As app events come into Meta, they come associated with
20 various identifiers, such as, you know, the Android advertiser
21 ID and the IDFA, which is Apple's equivalent.

22 When we process that data, we attempt to match it to an
23 associated or corresponding Facebook account where somebody has
24 logged in to -- you know, on that same device, as an example,
25 because that would need the same device ID, the same Facebook

1 account. So if I log in on my device, you know, my IDFA may be
2 associated with my Facebook account today, and that would later
3 be available for matching such that when an event came in, that
4 event could be, based on that shared identifier, associated to
5 my account.

6 Q. Does Facebook make these matching -- does it make this
7 matching a secret?

8 A. No, it's not a secret.

9 Q. Is Facebook -- if it gets a number of device identifiers
10 from an app developer, is Facebook able to match them all to
11 Facebook to individuals?

12 A. Absolutely not.

13 Q. Why do you say that?

14 A. There's a number of different reasons. The first one
15 would be, you know, maybe that person just doesn't use
16 Facebook. And if nobody has ever logged in to Facebook or
17 Instagram on their phone, like how would we know that that
18 device ID is associated to their account?

19 You know, they may also just have never even created a
20 Facebook account in the first place. Right? And, again, like
21 there's nothing to match it to.

22 Q. And to be clear, you've worked, along with others, to try
23 to improve Facebook's matching; correct?

24 A. Yeah.

25 Q. And are there still, despite your and others at Facebook's

1 best efforts, these kinds of limitations you've described?

2 A. Yes.

3 Q. So if someone had a Facebook account in 2010 that they
4 stopped using by 2011, would Facebook be able to match a device
5 ID to their account?

6 MR. CANTY: Objection.

7 THE COURT: You can answer.

8 THE WITNESS: Almost certainly not.

9 BY MR. CLUBOK:

10 Q. Why do you say that?

11 A. I mean, frankly, I'm not even sure if such device IDs
12 existed in 2010. But --

13 Q. Sorry. Do you know when device IDs were -- you started to
14 see them being used such that the numbers were coming to
15 Facebook?

16 A. As I understand, IDFA and AID came about around 2012,
17 2013.

18 Q. Okay. So if somebody had stopped using their Facebook
19 account in 2011, why would it be nearly impossible for Facebook
20 to match to their account, even if they got a device ID today
21 or in 2017, let's say, that was from that same person?

22 A. Yeah. Facebook would not know what, you know, the device
23 IDs to that person or account are.

24 Q. If somebody is not a Facebook user at all, does Facebook
25 have a way to match up device IDs they get from an app?

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1 **A.** No. We match to an account.

2 **Q.** Let's look at Exhibit -- let's move on from matching to
3 machine learning, and let's look at Exhibit 111R, which you
4 were asked about in direct examination. Mr. Canty asked you
5 some questions about the second page of this, this kind of
6 complex chart.

7 And we'll blow it up any way that makes sense, but he
8 asked you to follow some blue arrows, and the blue arrows go
9 one way, and then he said the orange arrows go some other way.

10 Do you remember the questions he asked about all that?

11 **MR. CANTY:** Objection.

12 **THE COURT:** It's just table-setting. Go ahead.

13 **THE WITNESS:** I remember them.

14 **BY MR. CLUBOK:**

15 **Q.** Okay. And I just want you to explain as best you can
16 where on this chart, if at all, it shows or tries to show how
17 signals from apps are being used with the ads delivery system.

18 **A.** This particular diagram only shows them in a very limited
19 way.

20 So on the left-hand side of the diagram, you have an arrow
21 going from pixel fires, SDK events, third-party events, to
22 something called events scribe. And then that goes with an
23 arrow called labels into a system call Ad Logger.

24 A label within a machine learning system is sort of like a
25 true and false. The machine learning system attempts to learn

1 patterns, and the label is sort of, you know, this is the
2 pattern you should learn or this is not the pattern you should
3 learn.

4 In this particular case, labels is a -- you know, one
5 particular usage of data, but the only possible labels that
6 could have been created from SDK events were those created from
7 standard events.

8 And so I guess giving a concrete example, we show your ad
9 to ten people. Of those, you know, five people buy your
10 product or install your app, and five people don't.

11 When we get -- you know, for the five people that did
12 install your app would get five SDK events, which maybe we'd
13 match, maybe we wouldn't. Let's assume we do. And then we
14 would actually, you know, look back and say, okay, you know,
15 did any of these five people see an ad? If they did, then
16 information surrounding the context of how that ad was shown to
17 them, you know, would be fed into the machine learning system.

18 And so this really is just saying that yes or no. If
19 people, you know, for like after a day or longer didn't
20 actually install your, you know, app, they would what we call
21 negative labels, saying, you know, the pattern of, you know,
22 circumstances to show this ad in is people who did buy the app,
23 not people who didn't.

24 Q. And by the way, I should have asked at the beginning.

25 Mr. Canty reminded you that in the discovery phase of this

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1 case, you were designated by Meta as the person most
2 knowledgeable to talk about subjects -- many subjects that
3 relate to this case.

4 Was machine learning in the context of this case one of
5 those subjects you were designated by for the purposes of this
6 litigation?

7 MR. CANTY: Objection.

8 THE COURT: Overruled.

9 THE WITNESS: Yes.

10 BY MR. CLUBOK:

11 Q. Okay. So keeping that hat on, I want to ask you: Is the
12 machine learning -- and this -- for example, your example of
13 somebody buying sneakers. Is the machine learning that an
14 individual person like Tom Johnson just bought blue sneakers at
15 Nike, is that what is meant by machine learning in this
16 context?

17 A. No, I wouldn't describe machine learning in that way.

18 Q. Why not?

19 A. I mean, that is a piece of information. When we say
20 machine learning, we generally refer to the model itself, which
21 is, again, a system to, you know, identify patterns and
22 correlations.

23 Q. Could the system be queried, for example, to say, "Hey,
24 tell us what information Jennifer Chen or Tesha Gamino or
25 Sarah Wellman entered into the Flo app or any another app"?

1 **A.** The delivery could not.

2 **Q.** Could the system be queried to say, "Give me a list of all
3 the woman who told Flo they were pregnant when they used the
4 app"? Does that have that functionality?

5 **A.** I mean, all of this data stopped existing several years
6 ago, so I -- I don't think any system would be able to answer
7 such a question.

8 Facebook has retention policies that, you know, after some
9 period of time, such data would be deleted.

10 **Q.** We've talked about how custom app event names are
11 obviously chosen by the developer.

12 Does Facebook -- does Facebook's ad delivery system
13 differentiate if that developer chooses to call things events
14 one, two, three, four, or if they choose to call an event
15 R_CHOOSE_GOAL, R_SELECT_LAST_PERIOD_DATE, or
16 R_SELECT_CYCLE_LENGTH? Any different at all to the system the
17 way it operates?

18 **A.** The delivery system tries to recognize patterns. It
19 doesn't try to interpret what those event names are.

20 **Q.** Does more data always make your machine learning model
21 more effective or more accurate?

22 **A.** No.

23 **Q.** Why not?

24 **A.** I think there's a number of different problems there.

25 For example, that data may not actually be useful and may

1 take away from potentially useful features.

2 But, you know, other problems that could happen are, say,
3 overfitting where, you know, the machine learning system
4 doesn't generalize effectively because you fed it too much
5 data.

6 Q. You mentioned overfitting, and obviously, Dr. Zervas, you
7 may know, testified about that.

8 Is that the first time you ever heard about this problem,
9 overfitting, when Dr. Zervas tried to explain it to the jury?

10 A. No.

11 Q. How common is that problem in your field?

12 A. I mean, overfitting is a pretty run-of-the-mill machine
13 learning problem which, you know, as -- it's not just a
14 Facebook thing. It's a problem across everybody doing machine
15 learning.

16 Q. Talking about the -- getting back to the subject of
17 whether more data is always better.

18 Facebook has a lot of data about things that its own users
19 do on Facebook, like post a picture of your dog or celebrate a
20 birthday or things like that; right?

21 A. Right.

22 Q. What do you refer to that data as?

23 A. We typically call that "first-party data."

24 Q. And how do you refer to the data that you get from the
25 signals of offsite activity like app developers or websites?

1 **A.** We typically call that "third-party data."

2 **Q.** For the ad delivery system, are those two sources of data
3 equally valuable?

4 **A.** No.

5 **Q.** Can you describe why not?

6 **A.** Yeah. I mean, the example I gave earlier of you show an
7 ad to ten people and like five people buy the product or not --
8 there's actually one step higher. I mean, first, we need the
9 information that we showed ads to people in order to possibly
10 do anything there.

11 But, actually, you know, the machine learning model kind
12 of operates in two steps when it chooses to show somebody an
13 ad. First, what it does is it predicts the likelihood that
14 somebody's -- when presented with the ad, is going to click the
15 ad. And all of that is first-party data; right? It's
16 happening on Facebook while you're in news feed or whatever
17 you're doing.

18 The second part is, you know, given the probability that a
19 user clicks this ad, what is the probability that they'll
20 install the app or other things. And so the first-party data
21 is, you know, sort of the building block and is necessary
22 before and more important than the third-party data.

23 **Q.** Okay. So let's talk about the custom app event data and
24 talk about how important that would be, generally speaking, to
25 the machine learning model.

1 Was custom -- well, first of all, was custom app event
2 data, any of it, transmitted to Meta via the code from the SDK
3 from Flo or -- and then made available to Meta's machine
4 learning model? Does that delivery system, as far as you can
5 tell?

6 **A.** Yes.

7 **Q.** Okay. But now I want to ask you more specifically: Was
8 all the data that Facebook got from Flo put right into the
9 content delivery system?

10 **A.** No.

11 **Q.** Okay. What about Flo's custom app event parameters that
12 were associated with those custom app event names? Were those
13 delivered to the ad delivery system?

14 **A.** No.

15 **Q.** What about -- so, for example, for --

16 **MR. CLUBOK:** I'm going to 1271, if we can put that up
17 again.

18 **BY MR. CLUBOK:**

19 **Q.** These are the 12 event names at issue. You're saying the
20 names would have been ingested or made available, I should say,
21 to the ad delivery system?

22 **A.** I don't know if I'd say the names were made available, but
23 the custom app events and like the pattern based on these
24 names, they would have been hashed or converted into some
25 indecipherable format. That would have been made available.

1 Q. And what about the parameters associated with, for
2 example, R_CHOOSE_GOAL? Whatever the responses were that were
3 then translated into the data that was then sent by Flo to
4 Meta, would that have been even made available to the content
5 ad delivery system?

6 A. That wouldn't have been used, no.

7 Q. Can advertisers --

8 By the way, is any of this data that you get from one
9 advertiser or one app developer or one website -- is it ever
10 made available publicly?

11 A. No.

12 Q. Is it ever shared with any other advertiser? Like if you
13 get Flo's information, do you share it with Nike or anybody
14 else so that they can run their ads?

15 A. No.

16 Q. Can advertisers target ads based on the meaning or the
17 perceived meaning of custom app event data?

18 A. Only so far as they are the ones who know what the meaning
19 would be and, you know, they're the ones who create custom
20 audiences, not Meta.

21 Q. Would the machine learning -- we hear about machine
22 learning a lot.

23 The question is: Would a machine ever learn who of
24 Flo Health's users were pregnant based on any of the
25 information that was made available to the system?

1 **A.** We had neither machine nor people attempting to interpret
2 what this information meant.

3 **Q.** How about fertility windows?

4 **A.** The same applies.

5 **Q.** Dates of periods?

6 **A.** The same applies.

7 **Q.** Goals?

8 **A.** Again, the same applies.

9 **Q.** Let's talk just a little bit more about the Facebook SDK.

10 As a -- do you understand how the -- have you reviewed the
11 code, every line of code or as much as you could, of the SDK?

12 **A.** Not every line, no.

13 **Q.** Okay. How many lines are there?

14 **A.** A lot. The SDK also includes a lot of features that are
15 not being described today, such as things for Facebook login
16 and various other functionality.

17 **Q.** Okay. Let's focus on the parts of the code in the SDK
18 that have been at issue in this case, as far as you understand.

19 And by the way, you were also -- you were also identified
20 as the person most knowledgeable at Facebook to talk about
21 those issues in your deposition too; correct?

22 **A.** Correct.

23 **Q.** Straight up, does the SDK operate as a recording device?

24 **A.** Absolutely not.

25 **Q.** Why do you say that?

1 **A.** It doesn't record things. It's not writing to a CD or a
2 tape or trying to take a video or anything like that.

3 **Q.** If an app incorporated Facebook's SDK during the class
4 period and they chose to send certain data to Facebook, were
5 they sending the same communication to Facebook that they had
6 with their users?

7 **MR. CANTY:** Objection.

8 **THE COURT:** Sustained.

9 **BY MR. CLUBOK:**

10 **Q.** Can you describe what the SDK was doing? Let's say
11 Sarah Wellman or Ms. Gamino or any other user typed in the
12 dates of their period and answered other questions.

13 What, if anything, would the SDK do to get that
14 information to Meta?

15 **A.** I mean, the SDK wouldn't do anything. Somebody would have
16 to write -- you know, if any information was transmitted
17 subsequent to one of those interactions to Meta, it would have
18 been because Flo had decided -- or like whichever app
19 developer, really -- had decided to transmit an app event to
20 Meta.

21 **Q.** When Mr. Canty was talking to Dr. Egelman, he asked him
22 questions where he asked him, "Hey, could users, quote, stop
23 the recording by the Facebook SDK?

24 And Dr. Egelman answered no.

25 Do you agree with that characterization by Dr. Egelman?

1 **A.** I don't think the question makes sense.

2 **Q.** Why not?

3 **A.** The SDK -- I wouldn't describe it as something you turn on
4 or off. It is some lines of code that are provided to app
5 developers that they incorporate into their app, and then they
6 instruct it to do things if they want it to do those things.

7 **Q.** Would Meta have any control over whether the SDK was
8 getting information of one nature for R_CHOOSE_GOAL and a
9 different nature for SESSION_CYCLE_DAY_FIRST_LAUNCH or any
10 other nature associated with any of the 12 custom app event
11 names at issue in this lawsuit?

12 **A.** All of that would have been implemented by the app
13 developer, not by Meta.

14 **Q.** Does Facebook have any way to record certain
15 communications between Flo app and its -- or Flo Health and its
16 users via the SDK -- via the lines of code in the SDK?

17 **A.** No.

18 **Q.** I want to end with talking about Exhibit 110. This is a
19 document that Mr. Canty showed you a portion of, and this is
20 one that's -- if we brought it out here, it would be a couple
21 of feet, I think, high. But we've got an electronic version,
22 so I'm going to try to ask you about questions either based on
23 the snippet that Mr. Canty provided to you or the electronic
24 version that Mr. Johnson has available and can put onto the
25 screen. Okay?

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1 So on the screen we have Exhibit 110, the full version,
2 the native version. And you can see it's -- it's an Excel
3 spreadsheet with number of tabs.

4 Do you see that?

5 **A.** Yeah, I see that.

6 **Q.** And this is a document that you've worked pretty closely
7 with in the past?

8 **A.** Yeah. I've reviewed it entirely.

9 **Q.** In fact, you verified interrogatories using this document
10 along with text that described this; correct?

11 **A.** Yes.

12 **Q.** What are we looking at on what's been marked as Exhibit
13 A-1 -- or 110A-1? That's the first tab of Exhibit 110.

14 **A.** Yeah. So this is a tab showing a summary of app events
15 sent from the Flo Health app to Facebook.

16 **Q.** And during what time period?

17 **A.** So the time period is December 9, 2017, through
18 December 4, 2019.

19 **Q.** And first of all, does this -- so, for example, if you
20 looked at a number on the side and you see the first one,
21 Android version, and you see 24 million, approximate, number of
22 unique individuals associated with that event, what is that
23 communicating?

24 **A.** Yeah. So for this particular event titled "Android
25 version," there was worldwide 24-and-change million unique

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1 individuals associated with this event.

2 Q. Does that mean that's 24 million Facebook users associated
3 with that event?

4 A. No, it doesn't. In circumstances where the event couldn't
5 be matched to a Facebook user, you know, we'd approximate the
6 rough numbers of users.

7 Q. And by the way, is it true that this was all the data that
8 was left at Facebook by the time someone first asked them to
9 produce -- or asked you to produce data regarding what you had
10 if you could identify anything that Flo Health had sent you?

11 A. That is correct.

12 Q. And by the time this was prepared, looks like in December
13 of 2019, Facebook's ordinary data retention policies had
14 discarded all the original data; correct?

15 A. That is correct.

16 Q. And that was years before this litigation was brought;
17 right?

18 A. Correct.

19 Q. So in December you were tasked with trying to gather
20 whatever information you could to indicate what Facebook at
21 least had, to the best of your knowledge, at some point, and
22 this is what you came up with?

23 A. This is what Meta produced, yes.

24 Q. And it lists -- for example, if we were to look for
25 R_CHOOSE_GOAL, which is --

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1 **MR. CLUBOK:** Mr. Johnson, if you could type that in
2 under find R_CHOOSE_GOAL.

3 **BY MR. CLUBOK:**

4 **Q.** If you were to search for that, it looks like row 147 it
5 says R_CHOOSE_GOAL, and it shows 34 million and some
6 approximate number of unique individuals associated with that
7 event; right?

8 **A.** That is correct.

9 **Q.** And can you tell the jury what that means. What did
10 Facebook know about the data that Flo Health had sent when you
11 were asked to look in December of 2019?

12 **A.** At the time this document was produced, there was very
13 little data left, just like counts describing how much data had
14 been transmitted to Meta, and, you know, they want breakdowns
15 for other things available to answer questions, like which
16 country were these from or how many were actually Facebook
17 users.

18 **Q.** Does that 34 million represent 34 million people in
19 California who had used the Flo Health app during the time
20 frame?

21 **A.** For multiple reasons, no.

22 **Q.** What are the multiple reasons?

23 **A.** I mean, again, like this is a worldwide number, so it's
24 not just for America, it's not just for California, and it's
25 also not just limited to Facebook users. There is

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1 approximation for the non-Facebook users.

2 Q. Okay. Let's try another one. Let's clear the screen and
3 start again. Let's try R_AGE_CHOSEN_PREGNANCY. Okay? And
4 let's see what that shows.

5 It looks like there's two rows, 145 and 146. And I'll
6 just note that on 1271, which is the 12 custom app events at
7 issue in this case, those are two of them.

8 Sorry -- yup. R_CHOSEN_PREGNANCY,
9 R_AGE_CHOSEN_PREGNANCY_METHOD and R_CHOOSE_GOAL are three of
10 the 12 custom app events at issue in this case; right?

11 A. Right.

12 Q. And for the pregnancy one, it looks like the number's more
13 likely 539,000 for one and 391,000 for the other; right?

14 A. I see that.

15 Q. And that's also worldwide?

16 A. Yeah.

17 Q. Has Facebook identified -- well, the three women or the
18 five women, I guess, who testified here -- they've all
19 testified that none of them were pregnant when they first used
20 the app; right?

21 A. Okay.

22 Q. Are you aware of any name, a single person, that Facebook
23 could identify today that may have been pregnant when they
24 first used the app and told Flo and therefore Facebook got that
25 information?

1 A. No.

2 Q. Is there any way to query the system to try to figure that
3 out, even if you wanted to?

4 A. The data stopped existing years and years ago. Like it
5 would not be possible.

6 Q. Exhibit 1271 has the list of 12 custom app events that the
7 judge has said are at issue in this lawsuit.

8 Have you endeavored to look for each of these 12 in this
9 list of all the app events that Facebook could identify in
10 December of 2019 that Flo had sent?

11 A. Yeah, I've looked for each one of those.

12 Q. And were you able to find all 12 of these in Exhibit 110?

13 A. No.

14 Q. Which ones were you -- what were you not able to find?

15 MR. CLUBOK: And let's put up 1271, if it helps you,
16 for a minute.

17 BY MR. CLUBOK:

18 Q. On 1271, are there any of these 12 custom app events'
19 names at issue in this case that you couldn't find in
20 Exhibit 110 or anywhere in Facebook's records when you were
21 tasked in December of 2019 to try to do that?

22 A. I was unable to find the SESSION_CYCLE_DAY_FIRST_LAUNCH
23 event.

24 Q. The last one on the list?

25 A. Correct.

WOOLDRIDGE - CROSS / CLUBOK

1 Q. Let's go back to 110.

2 And, again, this was something you prepared to the best of
3 your ability way back in December of 2019 to try to figure out
4 what the scope of the issue was?

5 A. This was by Meta, yes.

6 Q. And let's do a fresh search now just to check.

7 SESSION_CYCLE_DAY_FIRST_LAUNCH -- FIRST_LAUNCH. Oops. Okay.
8 I'll read it slowly. Let's look for
9 SESSION_CYCLE_DAY_FIRST_LAUNCH.

10 MR. CLUBOK: And let the record reflect the screen
11 says "We couldn't find what you were looking for. Click
12 options for more ways to search."

13 BY MR. CLUBOK:

14 Q. Have you --

15 MR. CLUBOK: And thank you, Mr. Johnson.

16 BY MR. CLUBOK:

17 Q. Have you, Mr. Wooldridge, personally searched this entire
18 database and each and every one of the tabs to see if Meta had
19 any record that it actually ever received anything related to
20 SESSION_CYCLE_DAY_FIRST_LAUNCH, at least based on what was
21 available to you to check in December of 2019?

22 A. Yeah, I've searched this entire file, and I did not find
23 it.

24 Q. In any of these tabs?

25 A. Correct.

WOOLDRIDGE - CROSS / CLUBOK

1 Q. One last question -- or hopefully we'll get to it.

2 Look at Tab A2 of Exhibit 110, please.

3 Tab A2 has -- well, describe what's in A2 and why it's
4 different from A1.

5 A. Yeah. A2 is sort of similar to A1, but instead of showing
6 the, you know, total number of approximate individuals, it
7 shows it broken out day by day.

8 Q. And have you looked day by day to see --

9 And it says here that there's data that continues to be
10 sent -- or through December 9, 2017, from Flo.

11 Do you see that?

12 A. I see that.

13 Q. Did you check, again, Exhibit 1271, the names of the 12
14 custom app events, to see the last date that any of these were
15 ever sent -- or received by, I should say, by Meta?

16 A. I think you said December 9, 2019.

17 Q. I apologize. Let me try it one more time.

18 Exhibit 1271 is the list of 12 custom app events that are
19 at issue in this case.

20 Did you endeavor to check each one to see -- at least for
21 the 11 that Meta did have information it had received, to see
22 for those 11 what was the last day any of those 11 custom app
23 event names were sent to Meta?

24 A. Yeah. So in this file, I looked for it, and all of them
25 cut out around February 2019.

WOOLDRIDGE - REDIRECT / CANTY

1 Q. Shortly before the Wall Street Journal article came out;
2 correct?

3 A. Around that time, yeah.

4 MR. CLUBOK: Okay. Thank you.

5 THE COURT: Okay. Any brief recross?

6 MR. CANTY: Yes, Your Honor.

7 REDIRECT EXAMINATION

8 MR. CANTY: Can I have 226A pulled up, please. And if
9 we could go to page 11.

10 BY MR. CANTY:

11 Q. Mr. Wooldridge, this is 226A, in evidence. This is the
12 interrogatory from Meta.

13 Can you read from the second line, beginning with "Meta is
14 able to confirm."

15 A. Could you give me the line number?

16 Q. 2.

17 A. Read aloud?

18 Q. Yes, please.

19 A. (as read):

20 "Meta is able to confirm based on the app events
21 data available from September 29, 2019, to June 1,
22 2021, described in further detail below under the
23 heading Storage of Flo App Data that the app events
24 data that Flo app sent to Meta included the
25 following."

WOOLDRIDGE - REDIRECT / CANTY

1 Do you want me to keep reading?

2 Q. Yes.

3 A. (as read):

4 "Event name, event parameters, time an event was
5 logged on the device, version of an app logging the
6 event, type of device that sent the event, e.g., a
7 phone, tablet, or computer; type of operating system
8 off the device that sent an event, e.g., iOS/Android;
9 device model; client type, e.g., native app, browser,
10 Messenger; client operating system version; client
11 browser, e.g., Safari/Chrome; SDK, e.g., AppsFlyer;
12 how the app was acquired by the user, e.g., via an
13 ad; device mobile network carrier; device screen
14 dimensions; total device disk space; remaining disk
15 space on the device; and whether ad tracking was
16 enabled."

17 Q. So you're not disputing that the parameters were sent to
18 Meta; correct?

19 A. Developers could send parameters to Meta, yes.

20 Q. No, I'm asking you that this is what this document that
21 Meta attested to says, that the -- that the parameters were
22 sent; correct?

23 A. We say that Meta -- you know, app event data the Flo app
24 sent to Meta included event parameters. I don't know
25 specifically -- you know, we don't have a record showing that

1 specific parameters were received by Meta.

2 Q. That's not what I asked. I asked whether or not this was
3 sworn to, that event parameters from the Flo app were sent to
4 Meta. That's what this says; correct?

5 A. It does say that.

6 Q. And before, you testified that the machine learning system
7 didn't ingest the parameters.

8 I'd like to turn to page 13. And this is --

9 MR. CLUBOK: Objection. Misstates the question.

10 THE COURT: Just go ahead and ask.

11 BY MR. CANTY:

12 Q. Under Content Delivery Optimization, can you tell us where
13 in this answer you specifically said that you didn't take in
14 those event parameters into the machine learning system?

15 A. I don't believe it has wording for that specific effect,
16 yeah.

17 Q. You don't put that in this answer; correct?

18 A. This wording describes that app event data was made
19 available to be aggregated, but it doesn't go into further
20 detail on that.

21 Q. So the first time we're hearing that you didn't take in
22 parameters was today in court; right?

23 MR. CLUBOK: Objection.

24 THE COURT: Overruled.

25 THE WITNESS: I wouldn't say "take in parameters,"

1 just because you're describing whether it was used in the
2 machine learning model or whether it was received by Meta.
3 Could you maybe ask that more precisely?

4 **BY MR. CANTY:**

5 **Q.** Sure. It was definitely received by Meta. We can agree
6 on that; right?

7 **A.** Event parameters were presumably received by Meta.

8 **Q.** Well, you say "presumably," but you swore to it in an
9 interrogatory response that it was sent. Are you taking that
10 back?

11 **A.** "Event parameters" is a pretty broad term that -- I'm
12 happy for us to say that event parameters were transmitted to
13 Meta.

14 **Q.** I want you just to tell the truth. If that's the truth,
15 tell us that it was said. Were event parameters sent from Flo
16 to Meta?

17 **MR. CLUBOK:** Objection, Your Honor.

18 **THE COURT:** Overruled.

19 **THE WITNESS:** As I understand, yes.

20 **BY MR. CANTY:**

21 **Q.** And -- okay.

22 Now, the SDK was rolled out in 2015; correct?

23 **A.** There were various iterations of the SDK.

24 **Q.** And the Facebook SDK -- you were aware as early as --

25 **MR. CANTY:** This is yours, by the way.

1 **MR. CLUBOK:** Thank you.

2 **BY MR. CANTY:**

3 **Q.** You were aware as early as 2015 and 2016 that there were
4 risks that you may collect sensitive data, including PII,
5 health data, Social Security numbers, and passwords; right?

6 **A.** We always prohibited sending those in the terms, yes.

7 **Q.** So nothing precluded you with rolling out all these
8 protections that you developed in 2019 when you rolled out the
9 SDK in 2015? You could have waited until you had those
10 protections in place and put them out together with the SDK;
11 correct?

12 **A.** We didn't launch the health filter at that time, no.

13 **Q.** That's not what I asked.

14 What I'm asking is: Nothing precluded you from putting in
15 these safety precautions when you decided to roll out the SDK?
16 You could have made a decision as a business we're going to
17 make sure we get this right --

18 (Reporter interruption for clarity of the record.)

19 **MR. CANTY:** Sorry. I'm going to slow down.

20 **BY MR. CANTY:**

21 **Q.** We're going to make sure we get this right. We're going
22 to make sure we're not collecting this data. We're going to
23 own it, take responsibility for it, and make sure we have these
24 integrity systems set up before we release it to app
25 developers. You could have done that. Meta could have done

1 that; correct?

2 A. Meta did launch it with protections, including the terms.

3 Q. In 2019?

4 A. No. The terms always prohibited sharing potentially
5 sensitive information with Meta.

6 Q. No, no, no. Your rules told app developers not to send
7 it. I'm asking you what Meta did.

8 You could have set up the programs you have in place now
9 that you set in up 2019, where you actually took the
10 affirmative step to try to protect yourself from getting this
11 data? You can have done that when you rolled out the SDK in
12 2015; correct?

13 A. Sorry. We did take an affirmative step. The terms didn't
14 write themselves. We said do not send us sensitive
15 information.

16 Q. I'm not talking about the terms. I'm talking about not
17 what you said, but what you did.

18 In 2019, you set up this program, the end of 2019, that
19 you've testified about that filtered out sensitive health data.
20 Nothing precluded you from doing that in 2015 when you rolled
21 out the SDK; correct?

22 A. Putting aside the terms, which, you know, we did have out
23 there.

24 Q. I know you want to talk about the terms. I want you to
25 answer my question. We'll get back to the terms.

1 Nothing precluded you from setting up the parameters and
2 protections that you set up in 2019? You could have done that
3 in 2015, but you made a decision not to; correct?

4 **A.** I don't know if I'd characterize it that way, no.

5 **Q.** Well, you didn't do it in 2015; right?

6 **A.** We did it in 2019.

7 **Q.** And you also said that one thing you wanted to protect,
8 you never want passwords, and you say, well, passwords are not
9 valuable to advertisers; correct? Do you remember that
10 testimony?

11 **MR. CLUBOK:** Objection. Misstates the --

12 **THE COURT:** Overruled. Go ahead.

13 **THE WITNESS:** I don't believe that's how I framed it.

14 **BY MR. CANTY:**

15 **Q.** Well, why wouldn't you want passwords?

16 **A.** We don't want passwords shared through the app SDK
17 because, I mean, one, we prohibit that. We say don't send
18 sensitive information to Meta.

19 But two, like Meta uses and advertisers do not want that
20 shared via the app events part of the SDK to Meta.

21 **Q.** Right. There's no -- there's no market for advertisers to
22 want people's passwords; right?

23 **A.** Advertisers already have the passwords because they're the
24 ones creating the app.

25 The problem comes when they share that with Meta?

1 Could you repeat your question? Sorry.

2 **Q.** Yeah. We can agree that the only real market for
3 passwords would be like the black market for people wanting
4 those passwords; right? It wouldn't be useful to an
5 advertiser; right?

6 **A.** I mean, presumably these businesses have authentication
7 flow, so it might actually be useful to them, but not for
8 advertising purposes, no.

9 **Q.** But you would agree with me that knowing if somebody was
10 pregnant would be useful to advertisers; correct?

11 **A.** It might be. I could only speculate about that.

12 **Q.** You don't -- well, let's -- let me ask you.

13 You don't think that advertisers may say, "Hey, I want to
14 know if I can advertise to women between the ages of 25 and 35
15 that are pregnant," that may be useful to an advertiser;
16 correct?

17 **A.** Again, this is speculation, but potentially.

18 **Q.** That's speculation that that may be a target audience that
19 somebody may want to market ads to?

20 **A.** I mean, Facebook at that time did not offer in its
21 detailed targeting and interest targeting options the ability
22 to target pregnant women.

23 **Q.** Well, with respect to the word list that you described,
24 you've now said that the word "pregnant" and "pregnancy" is on
25 that list; correct?

1 **A.** It was on that list, yes.

2 **Q.** Do you now concede that those are sensitive health terms
3 and health information that you don't want and don't want to
4 collect?

5 **A.** I wouldn't characterize it in that way.

6 **Q.** Now, with respect to the machine learning, the chart that
7 we looked at before, you talked about specific ads that
8 Flo Health targeted because of specific custom app events.

9 Do you remember looking at that list?

10 **A.** Are you referring to the machine learning chart that was a
11 diagram on the table?

12 **Q.** Let me withdraw that question.

13 There was a list of specific ads. I think it was custom
14 ads that Flo Health --

15 **A.** Do you mean the mobile app custom audiences?

16 **Q.** The mobile app custom audiences. Thank you. Yes.

17 You saw that list; right?

18 **A.** I do remember seeing that.

19 **Q.** Where is the list of ads that were improved based on the
20 information that was ingested into the machine learning system?
21 Where is that list?

22 **A.** I mean, this is a list of custom audiences, not a list of
23 ads.

24 **Q.** I'm not talking about custom audiences. I'm talking about
25 you used data that you collect through custom app events to

1 improve your machine learning system to improve ads; right?

2 A. Roughly speaking, yes.

3 Q. Where is the list of those ads?

4 A. I don't think we have such a list.

5 Q. You don't keep a list of the ads that were improved
6 because you used the data from the women that used the Flo
7 Health app?

8 A. I don't think we would keep such a list.

9 Q. And, in fact, we looked at the list -- you talked about
10 deleting the underlying data. Do you remember that? You said,
11 Well, I can't even see what the -- whether the data had any
12 meaning to Meta because, for example, R_CHOOSE_GOAL -- all that
13 data for those individually identifiable women, is deleted. I
14 can't find it; right?

15 A. As our filtration systems reply to data, it does remove
16 said data.

17 Q. Okay. You -- but you did that search after the class
18 period?

19 A. Which search in particular? Sorry.

20 Q. The search as to what information was related to those
21 custom app events that we just looked at.

22 A. As in the list of information that was shared with Meta by
23 Flo?

24 Q. R_CHOOSE_GOAL -- remember that one?

25 A. I remember that.

1 Q. 34 million, and you were asked whether or not you could
2 identify the individual accounts that were associated with
3 these, and you said that's all been deleted. You don't have
4 that; right?

5 A. Right. Facebook has data retention policies, and it
6 deletes data received through the business tools after certain
7 amounts of time.

8 Q. And the reason why you couldn't look at it is because it
9 had already been deleted?

10 A. Yeah. This was years and years and years ago.

11 Q. But at the time that it was entered, that information was
12 available to Meta; correct?

13 A. Sorry. Before the data was deleted, you're saying the
14 data wasn't deleted. Yes, that's --

15 Q. Okay. That's what I'm asking, that at some point when you
16 identify it with a Facebook account, you know who that Facebook
17 account is, and that is ascertainable. I know you're saying
18 now it's been deleted, but at some point that was known and
19 ascertainable to somebody at Meta; correct?

20 A. I don't think anyone was looking at that time, but the
21 data may have existed in that format.

22 Q. So somebody -- if somebody wanted to, they could look that
23 up?

24 A. Potentially, yes. There are limitations to it.

25 Q. Now, back to the machine learning system. You talked

1 about overfitting. Do you remember that testimony?

2 A. I do.

3 Q. How does Facebook deal with overfitting? Walk us through
4 that process.

5 A. I mean, there's a bunch of things related to overfitting
6 this is --

7 Again, this is not just a Facebook-specific problem and
8 just -- frankly, isn't just a problem specific to, you know,
9 the ad systems.

10 Q. That's what I asked. I asked how -- Facebook's on trial
11 here, so let's keep it focused on Facebook.

12 How does Facebook deal with overfitting?

13 A. I mean, among other things, like limiting the number of
14 parameters for a given model so that it doesn't overfit would
15 be one approach.

16 Q. So you get the parameters and then you decide that you
17 want to narrow those parameters; right?

18 A. When we use the term "parameters" here, I am referring to
19 inputs to the model, not parameters as we've been describing
20 with respect to the SDK.

21 But limiting them is, you know, one way.

22 Q. You also said -- you were asked questions about whether or
23 not anybody at Facebook had the code or the decoder to
24 ascertain the meaning of this information that came in through
25 the custom app events and the parameters associated with that.

1 Do you remember those questions?

2 **A.** I recall questions like that.

3 **Q.** Is it your position that somebody needs a decoder or some
4 sort of key to understand what "get pregnant" means?

5 **A.** I think it depends on the context. Yes.

6 **Q.** What about "pregnant"? You think that you need a code to
7 figure out what the word "pregnant" means?

8 **A.** "Pregnant" could mean multiple things. Before, as you
9 were saying that sentence, that was -- you know, it's a
10 synonym, but that was a pregnant pause before you said that
11 word. So, again, it depends on the context.

12 **Q.** So -- so your machine learning system that gets
13 information from a fertility app gets the term "get pregnant,"
14 and your position is it may interpret that to mean a pause?

15 **A.** It doesn't attempt to interpret the custom event names or
16 custom parameters, so it actually wouldn't attempt to interpret
17 it at all.

18 **Q.** And with respect to the last custom app event,
19 SESSION_CYCLE_DATE_FIRST_LAUNCH, again, that information, what
20 you looked up on that spreadsheet -- your search occurred after
21 the class period ended; correct?

22 **A.** Correct.

23 **MR. CANTY:** Your Honor, may I have one moment?

24 **THE COURT:** Yes.

25 (Pause in proceedings.)

WOOLDRIDGE - REDIRECT / CANTY

1 **MR. CANTY:** Your Honor, I'm just pulling up deposition
2 testimony from Mr. Wooldridge, if I may have a moment.

3 (Pause in proceedings.)

4 **MR. CANTY:** This is --

5 (Counsel conferring.)

6 **MR. CANTY:** Your Honor, I'd like to read from --

7 **THE COURT:** I don't have it.

8 **MR. CANTY:** Okay.

9 **MR. CLUBOK:** Your Honor, I object to --

10 **THE COURT:** Don't object until I read it.

11 What page and line, please?

12 **MR. CANTY:** This is page 263 -- 262 and 263.

13 Actually, I believe it begins on the beginning of page 263,
14 line 2, question beginning with the word "so."

15 **THE COURT:** 263, line 2, through what?

16 **MR. CANTY:** Through line 7.

17 **THE COURT:** That's fine.

18 **BY MR. CANTY:**

19 **Q.** Mr. Wooldridge, do you recall being asked these questions
20 and giving these answers?

21 **MR. CLUBOK:** Objection. Improper impeachment.

22 **THE COURT:** I said it's fine. Go ahead.

23 **BY MR. CLUBOK:**

24 **Q.** (as read):

25 **"QUESTION:** So am I understanding correctly that the

WOOLDRIDGE - RECROSS / CLUBOK

1 custom data gets sent along with the custom app event?

2 "ANSWER: The two things are sent as part of the same, the
3 same app event to Meta."

4 Do you recall being asked that question and giving that
5 answer?

6 A. App event parameters are sent as part of app events, yes.

7 Q. My question is: Do you remembering being asked that
8 question and giving that answer?

9 A. Yes.

10 Q. Okay.

11 MR. CANTY: No further questions, Your Honor.

12 THE COURT: Okay. Very, very, very brief redirect.

13 MR. CLUBOK: Yeah.

14 REDIRECT EXAMINATION

15 BY MR. CLUBOK:

16 Q. Let's go right to that question.

17 If you could put 263 from his deposition. If you could
18 make it available to you, Mr. Wooldridge.

19 That question that you were asked at your deposition --

20 And frankly, thinking about your entire deposition that
21 was conducted by plaintiffs, were you ever asked details like
22 did standard parameters get made available to the custom -- to
23 the content delivery system?

24 A. No.

25 Q. Were you ever asked if custom parameters for standard

1 events were made available to the machine learning system?

2 A. No.

3 Q. Were you ever asked if custom parameters to custom app
4 events were made available to the machine learning system?

5 A. No.

6 Q. Other than that one question that Mr. Canty asked, is that
7 where it ended, on that subject, as far as you can recall?

8 A. I cannot recall the full --

9 Q. Okay. And now, even live here, if we turn back to
10 Exhibit 226A, which he put in front of you, and if we could
11 turn to page 11.

12 Right in front of this jury, Mr. Canty put this in front
13 of you and asked you to look at the text above the black part.

14 Do you remember that?

15 MR. CLUBOK: If we could blow up the top paragraph.

16 THE WITNESS: Yeah.

17 BY MR. CLUBOK:

18 Q. Right? And he asked you -- first of all, this
19 interrogatory said that Meta was able to confirm a lot of
20 different information, including client type and client
21 operating system version and client browser and all this other
22 stuff that we see here on the top of page 11 of Exhibit 226A;
23 right?

24 A. I see that.

25 Q. Were you ever asked to go through each one of those

WOOLDRIDGE - RECROSS / CLUBOK

1 individual pieces of data to ask if they would somehow -- if
2 they were made available to the ads delivery system, if every
3 single one of them was?

4 **A.** No, I was not.

5 **Q.** Is there more than one listed there that's not made
6 available to the ad delivery system?

7 **A.** Yeah, there's a number.

8 **Q.** And did Mr. Canty, either today or back in the deposition,
9 ever ask you to detail which ones were made available and which
10 ones weren't?

11 **MR. CANTY:** Objection.

12 **THE COURT:** Let's go ahead. It's fine.

13 **THE WITNESS:** No.

14 **BY MR. CLUBOK:**

15 **Q.** I wrote down the question he asked. I think I got it
16 right.

17 In front of this jury, he said, "Isn't it true that event
18 parameters were sent by Flo to Meta?"

19 Do you remember he asked you that question in front of the
20 jury?

21 **A.** I believe so, yes.

22 **Q.** And the answer to that question, simply?

23 **A.** Event parameters would have been -- I mean, as I
24 understand, Flo did sent event parameters to Meta.

25 **Q.** Okay. And were all the event parameters that Flo sent to

PROCEEDINGS

1 Meta made available to the ads machine learning system?

2 A. No.

3 Q. Okay. Which ones were and which ones weren't?

4 A. As I understand, event parameters that were sent alongside
5 standard events may have been made available to the machine
6 learning model in certain circumstances, but event parameters
7 that were sent alongside custom events were not.

8 Q. And are you certain of that?

9 A. Yes.

10 Q. Thank you.

11 THE COURT: Okay. You may step down.

12 Who do we have next?

13 (Witness excused.)

14 MR. CANTY: Your Honor, the plaintiffs intend to play
15 deposition designations.

16 THE COURT: You can go.

17 THE WITNESS: Oh, can I?

18 THE COURT: Yeah, that's what that means.

19 Who's next?

20 MR. CANTY: We intend to play deposition designations,
21 Your Honor.

22 THE COURT: All right. This is going to be on the
23 screen. This is on tape.

24 MR. CLUBOK: Your Honor, may we proceed?

25 THE COURT: Sure.

PROCEEDINGS

1 **MR. CANTY:** Thank you.

2 (Video was played but not reported.)

3 **THE COURT:** Is that it?

4 **MR. SADUN:** Your Honor, one question lagged out, and
5 would the Court allow me to read the question and answer? It
6 froze and the answer wasn't read aloud.

7 **THE COURT:** That's fine.

8 **MR. SADUN:** The question was (as read):

9 **"QUESTION:** I'll make this simple. Has Flo at any time
10 shared health information with any analytics company?

11 **"ANSWER:** Privacy is very important to us, so we never did
12 share Flo Health data with any analytical systems or
13 companies."

14 **THE COURT:** Okay. Who's next?

15 **MR. CANTY:** Your Honor, for the record, that was Roman
16 Bugaev, B-U-G-A-E-V.

17 At this time, the plaintiffs call Dr. Jennifer Golbeck.

18 (Jennifer Golbeck steps forward to be sworn.)

19 **THE COURT:** Want to stand up for a moment and stretch
20 a little bit?

21 **THE COURTROOM DEPUTY:** Please raise your right hand.

22 **JENNIFER GOLBECK,**

23 called as a witness for the Plaintiffs, having been duly sworn,
24 testified as follows:

25 **THE WITNESS:** Yes, I do.

GOLBECK - DIRECT / VILLEGAS

1 THE COURTROOM DEPUTY: Please be seated.

2 THE WITNESS: Thank you.

3 THE COURTROOM DEPUTY: Please state your full name for
4 the Court and spell your last name.

5 THE WITNESS: Dr. Jennifer Golbeck, G-O-L-B-E-C-K.

6 THE COURTROOM DEPUTY: Thank you.

7 THE COURT: Okay. Go ahead.

8 DIRECT EXAMINATION

9 MS. VILLEGAS: Your Honor, we have Trial Exhibit 2050,
10 which is going to be a demonstrative that Dr. Golbeck walks
11 through, and I understand there's no objection.

12 THE COURT: Okay. Do you have a copy for me?

13 MS. BLUNSCHI: No objection.

14 BY MS. VILLEGAS:

15 Q. Good morning, Dr. Golbeck.

16 A. Good morning.

17 Q. Could you please explain what is your understanding of
18 this case?

19 A. Yeah. My understanding is that Flo had a period tracking
20 app, as we've all heard, and data that people entered in that
21 was received by Facebook, and Facebook used it in their machine
22 learning systems to target ads.

23 Q. What kind of materials have you reviewed while forming the
24 opinions that you offer in this case?

25 A. A whole bunch. I looked at answers to interrogatories,

1 which we've seen; internal and public documents from Facebook;
2 some deposition transcripts; some of the diagrams that we've
3 seen here.

4 Q. Are you getting paid for the work that you're doing for
5 the plaintiffs here?

6 A. I am.

7 Q. How much?

8 A. \$550 an hour.

9 Q. Is your payment for your time today or any of the work
10 that you've done in this case -- is it contingent on the
11 results that we get in this case?

12 A. No.

13 Q. How did you first learn about this case?

14 A. I was contacted by a company that helps people who are
15 trying cases find expert witnesses, so they reached out to me
16 and asked if I would be interested in talking to you about
17 this.

18 Q. And what were you asked to do in this case by the
19 plaintiffs?

20 A. I was asked to look at all those documents that we talked
21 about and offer my opinion about whether that data from Flo was
22 used in Facebook's machine learning algorithms.

23 Q. Were you asked to produce a report in this case?

24 A. I was.

25 Q. How many reports did you actually write?

1 **A.** Basically two, one original and one responding to some of
2 their experts.

3 **Q.** And did you sign each of those reports?

4 **A.** I did.

5 **Q.** And do you still stand by the opinions that you offered in
6 those reports?

7 **A.** Yes, I do.

8 **Q.** Can you briefly describe your educational background for
9 the jury?

10 **A.** Sure. I went to the University of Chicago, so I did
11 undergrad there. I have a bachelor's degree in computer
12 science and economics. I stayed there for a master's degree in
13 computer science and then went to the University of Maryland in
14 College Park. I got a Ph.D. in computer science, and then
15 recently went back and got a master's degree in psychology from
16 Harvard.

17 **Q.** And you've also authored multiple books and peer-reviewed
18 articles. Can you tell us a little bit about that?

19 **A.** Yeah. I've written about 200 peer-reviewed articles about
20 machine learning, artificial intelligence, particularly focused
21 on social media privacy and like bad things people do on the
22 Internet.

23 **Q.** And have you presented on this research?

24 **A.** Yes. So in computer science, which you may have heard
25 from some of the other experts, we go to conferences. It's a

1 primary way that we publish. So I have presented talks there,
2 but I also talk a lot to industry groups. I'll go to like
3 realtor conferences or credit union conferences and talk to
4 kind of them as the public about this.

5 Q. And you've done TED Talks on this?

6 A. Six, I think. Six TED Talks.

7 Q. What classes do you teach?

8 A. I teach a whole bunch of different classes. I teach
9 machine learning. I teach a class on what we call social media
10 feed algorithms, the kind of stuff we've been talking about
11 here, how do we personalize content for people. I teach
12 programming, machine learning, which I might have said, social
13 network analysis. I teach a class on how to be an influencer
14 on social media.

15 Q. Have you developed machine learning projects yourself?

16 A. I have.

17 Q. Can you tell us a little bit about that?

18 A. Sure. So as one example of the kind of research we do in
19 my lab, I'm really interested in being able to use social media
20 data with AI and find out what things that tells us about
21 people that they might not know. So one example project that
22 we did was we went on Twitter and we looked at everyone who
23 announced they are going to their first Alcoholics
24 Anonymous meeting. This, of course, takes the "anonymous" out
25 of it, so who knows how that biased our data. But we made sure

1 these were people who legitimately were saying: I'm drinking
2 too much, I'm going to go to my first AA meeting tomorrow.

3 And then we followed them after that to see if they made
4 it 90 days sober, which is a good like early addiction recovery
5 marker. And we made sure they kind of said explicitly, so
6 maybe it was a year later they celebrated a year of sobriety
7 and we knew they had also made it 90 days.

8 And then what we did was build a model, build an
9 algorithm, to analyze everything they did on Twitter up until
10 that day they announced they were going to their first AA
11 meeting to predict: Would they make it 90 days sober?

12 So essentially, on the day you say "I'm going to go to my
13 first AA meeting tomorrow," we can push a button, look at what
14 you did on Twitter, and predict if you'll stay sober. Our
15 algorithm is right 85 percent of the time.

16 It scares me too.

17 **Q.** It's a little surprise there.

18 You've also done work for the Department of Defense; is
19 that right?

20 **A.** That's right. They fund a lot of my research.

21 **Q.** Are you allowed to tell us what you do for them?

22 **A.** Yes. I generally don't do any classified research.

23 So I work primarily on, you know, social media data,
24 largely on Americans. I do most of my work on English
25 datasets. But, for example, I study extremism and

1 radicalization, so I look at kind of apolitical groups. I have
2 a big project now, not political radicalization, but these
3 groups that become violent online. They're American. They're
4 not political. The DOD doesn't care about them.

5 But you can take those insights and apply it to things
6 like radicalization in other countries that does become a
7 threat to U.S. national security. So that's why they're
8 interested in a lot of the work I do.

9 Q. You wrote a peer-reviewed article titled "User Perception
10 of Facebook App Data Access."

11 Can you tell the jury a little bit about that one?

12 A. Yeah. Yeah, just to sort of go back. I think it was
13 2015, maybe.

14 Q. Yup.

15 A. So there is this very creepy video that came out. You
16 could kind of log in with Facebook to this video and it would
17 make this 90-second thing of some stalker looking you up, and
18 it would pull, using what was then the API, all this data from
19 your profile, and it would show up. So it was like a custom
20 video with a stalker guy tracking you down. It was a viral
21 sensation at the time it came out.

22 And so that paper was to study does this video actually
23 make people more aware of what data Facebook -- these are
24 Facebook apps we're talking about, so that's stuff like that
25 you would use inside the Facebook platform, what kind of data

1 did those have access to?

2 So we ran this study comparing -- we just asked people:
3 Here's a list of all these data points. Which ones do you
4 think a Facebook app could get access to?

5 And then we had some of them read the terms of service,
6 like the privacy policy. We had some of them watch this video.
7 And then we gave them a list again, and we were like: Now
8 which ones do you think they can get access to?

9 Every single person in that study underestimated how much
10 of their data was getting out. And that was true afterwards
11 also. I don't -- it's been a while since I looked at it. I
12 don't think anybody got it all right, but the people who
13 watched the creepy video were better than the people who read
14 the privacy policy, which was interesting. It kind of gave you
15 a more visceral understanding.

16 Q. So you've researched and written about Facebook and
17 Twitter extensively; is that right?

18 A. Definitely.

19 Q. And you've also researched and written about social media
20 extensively; is that right?

21 A. Yes. It's the focus of my work.

22 Q. You've also given a talk about the economic value of using
23 machine learning to do things, particularly with Amazon.

24 Could you tell the jury a little bit about that?

25 A. Yeah. I think it's important to recognize there are

1 really good uses of doing machine learning on people's data,
2 and often that comes in places where we have to find
3 information when we're kind of overwhelmed with options.

4 So Netflix would be one example; right? They have all
5 these shows and movies. How do you find the ones that you
6 want? Well, they'll recommend them to you. Same thing on
7 Amazon. How do you find the product that you want? They
8 recommend them to you?

9 And that's really successful. It's really helpful to us
10 and it's very profitable to them.

11 So at the time I kind of pulled the statistic that I use
12 in my talks about this. Amazon said that 35 percent of their
13 total revenue came from their recommender system. That's
14 essentially the algorithm that suggests stuff that you want to
15 buy. Under the hood, that's very similar to the kind of
16 algorithms we're talking about with social media where we kind
17 of get an understanding of what you like and then suggest
18 stuff.

19 **Q.** You mentioned a recommender system. Can you explain to
20 the jury what that is?

21 **A.** Yeah. A recommender system is like the academic term for
22 basically artificial intelligence that looks at data that we
23 have about you and what you like and then recommends or
24 suggests things that you might want. So that can be
25 recommending movies. That's a really classic example. I did

1 that in my dissertation 20 years ago. It can be products on
2 Amazon.

3 But, yeah, absolutely, it can be social media posts or
4 ads. The field as a whole is how do we model, kind of use AI,
5 to understand what people want and then suggest them things
6 that are going to be useful.

7 Q. And you're written and lectured extensively on recommender
8 systems; right?

9 A. I have.

10 Q. You've also written and lectured on artificial
11 intelligence extensively?

12 A. Yes.

13 MS. VILLEGAS: Your Honor, I'd move to qualify
14 Dr. Golbeck as an expert in the areas of computer science and
15 machine learning.

16 THE COURT: All right. Any objection?

17 MS. BLUNSCHI: No objection.

18 THE COURT: All right. The witness is qualified.

19 We're going to take our afternoon break, and we'll be back
20 at 1:25.

21 THE COURTROOM DEPUTY: All rise.

22 (The jury leaves the courtroom.)

23 (Recess taken at 1:07 p.m.)

24 (Proceedings resumed at 1:26 p.m.)

25 (Proceedings were heard out of the presence of the jury.)

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1 **THE COURTROOM DEPUTY:** All rise.

2 **THE COURT:** Let's bring in the jury.

3 (The jury enters the courtroom.)

4 (Proceedings were heard in the presence of the jury.)

5 **THE COURTROOM DEPUTY:** Please be seated. We're back
6 on the record in Civil 21-757, Flo versus Frasco -- Frasco
7 versus Flo.

8 **MS. VILLEGAS:** Thank you.

9 **BY MS. VILLEGAS:**

10 **Q.** Dr. Golbeck, in layperson's terms, can you explain to the
11 jury what artificial intelligence is?

12 **A.** It's complicated. In layperson's terms, the basic idea is
13 like regular computation, right, two plus two, you have a
14 correct answer, but there's a lot of times where you don't know
15 what the right answer is either because there's like too many
16 options to try to figure it out or it's just uncertain; right?
17 Are you going to like this ice cream or not? We don't really
18 know.

19 And so artificial intelligence is essentially a way of
20 computing an answer when it's uncertain what the exact right
21 one is.

22 **Q.** Is AI the same thing as machine learning?

23 **A.** Machine learning is a type of AI. There's a lot of
24 different kinds of artificial intelligence. ChatGPT is one.
25 That's also called a large language model. ChatGPT is just a

1 brand of that. That's not machine learning, really. It's a
2 different thing. And there's a bunch of different kinds of
3 ways to do artificial intelligence. Machine learning is one
4 kind.

5 **Q.** Can you tell us a little bit more about how machine
6 learning works to make predictions?

7 **A.** Yeah. Basically, there's two stages, and we've heard some
8 of the terms for this over the course of the last couple weeks.

9 So you have a training phase and then what you might call
10 a testing phase or a deployment phase.

11 In the training phase, you take a whole bunch of data with
12 the right answer, so if we're talking about ice cream, here's a
13 bunch of data about the person who tried it and then did they
14 like it or not. And you give those examples over and over and
15 over again to your algorithm that's going to try to figure out
16 how to estimate, if I give you some new data, what's the answer
17 going to be.

18 That's called the training phase, where it's learning how
19 to make that estimate, and that produces a model. And once you
20 have the model, you could deploy that. If you're a company
21 like Facebook, and use it to target ads, or if you're an
22 academic like me, you could take some new data, put it in
23 there, and test how well you perform.

24 **Q.** Did Meta have machine learning systems as some part of
25 their business?

1 **A.** They did.

2 **Q.** And you heard testimony from Tobias Wooldridge today that
3 Meta did use machine learning systems as part of their
4 business; right?

5 **A.** That's right.

6 **Q.** Did you see any technical documentation from Meta that
7 provided schematics for Meta's machine learning system?

8 **A.** Yes.

9 **Q.** I'm going to ask you more specific questions in a moment,
10 but if you had to summarize the opinion that you provided in
11 your expert report, what is it?

12 **A.** Very simply, Facebook received data from the Flo app and
13 it used that in its machine learning algorithms to target ads.

14 **Q.** Based on your review of the materials you mentioned
15 earlier and your experience, have you formed that opinion to a
16 reasonable degree of scientific certainty regarding the nature
17 of Meta's use of the data they received from the Flo Health
18 app?

19 **A.** I have.

20 **Q.** Today, would you still come to the same conclusion that
21 you reached in your report?

22 **A.** I would.

23 **Q.** So can you explain to the jury just how a machine learning
24 system is used for advertising?

25 **A.** Yeah. So I talked through this training phase and then

1 the deployment. So instead of doing that with ice cream or
2 some simple example, instead you would have a bunch of data
3 about people and what their interests are and tons and tons of
4 information about them, actually.

5 And then, as we actually heard in testimony earlier today,
6 whether or not they clicked on an ad or bought a product from
7 the ad, did whatever people were trying to do, those become
8 your training examples. And so your algorithm is going to look
9 at, okay, for this person with all this data, did they buy
10 something from this ad, and then the next, and the next, and
11 the next, until it builds a model.

12 So if a new person -- if I come along and you haven't seen
13 me before, you get all my data and you could make a guess about
14 whether I would buy the thing.

15 **Q.** Can you give us an example of how this works?

16 And I'm just going to move on and get my --

17 **A.** Do you have my slides?

18 Yes. I've made a very simple example to kind of talk us
19 through. We're going to do artificial artificial intelligence.
20 You get to be the algorithm here, basically.

21 So what I have in this table is some data about whether or
22 not I'm going to the beach. So we have the conditions: Is it
23 sunny, cloudy, or raining, and the temperature.

24 And then we have the right answer: Did I go to the beach
25 that day or not?

1 And I'm just going to talk you through this and you're
2 going to, without even thinking about it, be able to make a
3 model in your head, and that's essentially the human version of
4 what AI does.

5 If you go to the next slide, I made it a little easier. I
6 color-coded this so the sunny days are yellow, the cloudy days
7 are gray, and the raining days are blue. And then I sorted the
8 right answers, so we have the "yes" beach days at the top and
9 the "no" beach days at the bottom.

10 And if you just look at this, if I made it your job to say
11 "When does Jen like to go to the beach," you probably will see
12 that all those raining days are in the "no" column. There's
13 never a "yes." There's no blue ones up there at the top.

14 And if you were to look at the temperature numbers,
15 there's only yeses if it's over 75. There's no cold days up
16 there. There are some warm days that are a "no," but there's
17 never a cold day that's a "yes."

18 And so you've kind of trained a model in your head, so I
19 could give you a hypothetical -- and we may have this on the
20 slide -- and say, okay, let's say it's 83 degrees and sunny.
21 Am I going to the beach or not?

22 There's no row in here that has those conditions. There's
23 no sunny and 83. But you probably have a good guess in your
24 head right now because you have this model of what it means.
25 You're probably going to say "yes."

1 And that's essentially what machine learning does. You've
2 done it in your head, and it's trying to imitate the thing that
3 you do really naturally by looking at a bunch of examples and
4 building that model.

5 **Q.** Let's go to the next slide.

6 Can you explain a little bit what you're depicting here?

7 **A.** Yeah. It's just that you don't necessarily have to have
8 these very clearly labeled pieces of data.

9 So here we've made them look a little more like the labels
10 we've been talking about in this case. But even if I changed
11 all of this, so I were to put the conditions in some foreign
12 language or I were to give them a numerical coding, one, two,
13 and three, and if I changed the temperature to some scale that
14 none of us intuitively understand, you'd still be able to pick
15 up on these patterns. You know, you'd be able to see, okay,
16 all those yellow ones, even if they say "three" instead of
17 "sunny," those are all yeses. The blue ones are nos. And
18 whatever scale the temperature is, you'd probably, especially
19 if you were a computer, be able to say, huh, well, it's always
20 above this value.

21 So even if these things aren't super human-understandable,
22 you can still build that same model, and that's definitely true
23 for computers who are just looking for statistical connections.

24 **Q.** Dr. Golbeck, you were here last week when Mr. Satterfield
25 from Meta testified; right?

1 **A.** Yes.

2 **Q.** And you remember him testifying that data is important to
3 any machine learning system.

4 Do you agree with that?

5 **A.** I do.

6 **Q.** Could adding more data help a model like this?

7 **A.** Sure. So if we just stick with this simple example we're
8 looking at here about going to the beach, I gave you this
9 question: If it's 83 and sunny, am I going to the beach?

10 And you probably guessed yes. But it could be the answer
11 is no. That happens all the time in machine learning and in
12 life, you know?

13 And maybe the answer is no because I had the flu that day,
14 but you don't have any data here about whether I'm sick. And
15 so if we were to add a column that says whether I'm sick, you
16 would have a more accurate model, because then even though the
17 conditions look great, you could be like, okay, but she has the
18 flu and she doesn't go to the beach when she has the flu.

19 And then maybe even if I don't have the flu, the answer is
20 still no and that's actually because I'm out of town, but you
21 don't know that. And so if we add another column that says
22 whether or not I'm in town, we can get a more precise model.

23 And so that's why generally the more data you have and the
24 more -- we're talking about columns, but also the more rows you
25 have, the more accurately you can build a model.

1 Q. Do machine learning models process data in tables like the
2 one that we're looking at right here?

3 A. They're a lot more complicated than this, but you could
4 take this and put it into a machine learning system and build a
5 simple example.

6 Q. Let's take a look at the next slide here.

7 Can you explain what this means to the jury?

8 A. Only a little.

9 This is a neural network. This is a kind of machine
10 learning algorithm.

11 So I said there's artificial intelligence; machine
12 learning is one kind of artificial intelligence. There's a
13 bunch of different ways to do machine learning, but probably
14 the most popular is with something called a neural network.
15 This is a diagram of kind of how that works.

16 Q. So just giving the example that you gave before about
17 whether, you know, you go to the beach, where would that show
18 up in this system?

19 A. So we've got this color-coded. The yellow dots in here
20 are inputs, so that would be, in this example we've been doing,
21 the conditions: Is it sunny or cloudy or raining. The second
22 one would be the temperature.

23 This actually is three dots there; right? So maybe we put
24 in whether or not I'm sick. Those are our three inputs.

25 The red dot on the right side is our output. That's going

1 to be the "yes" or the "no."

2 And those hidden layers, these green dots in the middle,
3 are the kind of magic of how neural networks work. And I will
4 tell you generally what happens there. It's a lot of calculus.
5 It's a semester-long course to get like the intro to how to do
6 it.

7 But basically what you're doing is you take those inputs
8 and you convert them to numbers, and then you follow those
9 lines out of the yellow dots in the next column of green dots.

10 For each green dot, look at those lines coming in. You do
11 a weighted average of all those numbers from your inputs. You
12 do that at each of the green dots. And then those values,
13 those weighted averages, will go to the next column. They get
14 a weighted average of each of those green dots, and then the
15 same thing for the next column. And then at your output layer,
16 they also do a weighted average to get the answer.

17 The training phase that we've been talking about is
18 extremely complicated calculus that -- basically it tells you
19 how to update those weights. So if you get the wrong answer,
20 you go, oh, well, maybe I need to change how I'm weighting
21 things over here. That's about as clearly as I can explain it.
22 These are incredibly complicated systems.

23 **Q.** Why are the green dots called the hidden layers?

24 **A.** So the input is stuff that we create. That's our data.
25 And the output is the answer that we look at.

1 But the hidden layers, we don't really have any control
2 over that. We can kind of program what happens there, but
3 that's not stuff that we're putting in. That's the internals
4 of what's happening inside the algorithm.

5 Q. Does anyone know what's happening in the green layers?

6 A. Not really. This is a thing that like if you pay
7 attention to news about machine learning, they call it a black
8 box or they say, well, we don't really know.

9 We've spent, I think, like since the 1990s looking at
10 neural networks and trying to explain how did it come to that
11 decision and trying to undo what's going on in those hidden
12 layers, and we just can't really do it. We can't come up with
13 a reasonable explanation because the math it just so
14 complicated in there.

15 Q. Does Meta use this kind of predicted modeling or neural
16 networks in their advertising business?

17 A. They do.

18 Q. How do you know they use this kind of predictive modeling?

19 A. They say they do.

20 Q. I want to ask you about how all this applies to Meta's
21 relationship with Flo Health and data from Flo Health app
22 users.

23 What did Meta -- what kind of data did Meta use to run
24 predictive models?

25 A. They use a lot of data, but from Flo in particular, they

1 used both the -- both types of app events.

2 Q. Well, stepping back, let's talk about a lot of data. What
3 kind of data do they use besides the Flo Health app data?

4 A. So they have all kind of data about how you've used their
5 products, Facebook and Instagram. That includes things like
6 your profile data, what you put in there, who your friends are,
7 what your social connections are, who you've liked and
8 interacted with and commented on, pages that you've liked,
9 things that you've shared, how long you watch videos.

10 All of those are the kinds of data they have about you
11 from using their systems, and then, as we've heard in other
12 testimony, they have data from things like pixels how you're
13 using websites. Those are kind of third-party pieces of data.
14 And then SDK data as well, like we've been talking about in
15 this case.

16 Q. So SDKs as in software development kits?

17 A. Correct.

18 Q. What kind of data does Meta get generally from software
19 development kits like the one that Flo installed on their app?

20 A. So they're going to get standard app events that we've
21 been hearing about. These are things like did someone launch
22 the app, things that people would do in any app.

23 And then they'll also receive custom app event data,
24 which, again, we've been seeing over the course of the last
25 couple weeks, are apps that the app makers define along with

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1 values that get sent from the people who created the apps.

2 Q. Dr. Golbeck, we're going to look at marked
3 Trial Exhibit 111R. I believe it's in your binder, if you want
4 to pull up the document.

5 Do you recognize this document?

6 A. Yes.

7 Q. Was this one of the documents you relied upon when forming
8 your opinions in the case?

9 A. It is.

10 Q. What is this document?

11 A. I think we've all seen this one. This is journey -- The
12 Journey of an Ads Ranking Model. This is an internal Facebook
13 document about how ads ranking works.

14 Q. Could you read the first sentence out loud to the jury,
15 please.

16 A. Sure. (as read):

17 "At Facebook, ads is breadmaker and contributes
18 around 99 percent of company revenue in Q1 '19."

19 Q. Is this surprising to you?

20 A. No. I think most of us who pay attention to this space
21 know that ads are how companies that do this sort of
22 advertising, make the vast majority of their money.

23 Q. And can you read to the jury the next highlighted line,
24 starting "Ads ranking system."

25 A. (as read):

1 "Ads ranking system is to recommend the most
2 matched ads candidate to user to maximize our revenue
3 growth. The ranking decision is powered by hundreds
4 of large-scale models trained offline from billions
5 of samples."

6 **Q.** Can you explain your understanding of that to the jury?

7 **A.** Yeah. So essentially what the ads ranking system is doing
8 is trying to basically find the best ad to show you, so that if
9 you're using Facebook, for example, there's a little slot
10 there, what ad do we put into that slot? And they want to pick
11 the best one because that helps them make the most money.

12 That's the first sentence.

13 The way that they do that is using a whole bunch of
14 models. That's the output of the machine learning algorithms.
15 They train those offline. That's that training phase we've
16 been talking about. Offline just means it's not happening like
17 as you're picking -- you know, as you're on Facebook and
18 they're picking the ad to show you. They train them first.
19 And the billions of samples is all the data they have. You can
20 think of those samples as like rows in that table we were
21 looking at in my simple beach example.

22 **Q.** Lets go to the next page.

23 Have you seen this diagram before?

24 **A.** Yes.

25 **Q.** And what is this diagram?

1 **A.** We've all seen this diagram. This is the very complicated
2 diagram of how data moves through the Facebook machine learning
3 system, including the ads delivery system.

4 **Q.** And where in this diagram does the SDK data enter into
5 Meta's system?

6 **A.** Over on the left -- that's right, right there -- we see
7 SDK events listed there.

8 **Q.** And this is an internal Meta document that you reviewed;
9 correct?

10 **A.** That's right.

11 **Q.** At a high level, can you explain what this diagram
12 represents?

13 **A.** Essentially, what it's doing is showing how that data
14 comes into the system and then flows through both the training
15 and then the deployment phase, the ads delivery system within
16 Facebook.

17 **Q.** Can you tell where the training happens?

18 **A.** So they have an online training section. I don't think we
19 see it in the zoomed-out part here, but if -- yeah, if we're
20 looking at the bigger one, along that blue arrow that's going
21 through, you can see it says "online training" there. So
22 there's training happening there as well.

23 **Q.** How important is the training phase for a model like this?

24 **A.** It's -- it's the most important thing. Training is how
25 you figure out what that model is, so if your training is bad

1 and then you put your model out in the world, it's not going to
2 be very good. I think just like anything, right, you have to
3 train more to get better.

4 Q. Is it your understanding that SDK events are used to train
5 this model?

6 A. Yes.

7 Q. And Meta's interrogatory responses were another document
8 that you considered in reaching your conclusions; is that
9 right?

10 A. Yes.

11 MS. VILLEGAS: We're going to look at
12 Trial Exhibit 22A, previously admitted. Sorry. 226A,
13 previously admitted.

14 BY MS. VILLEGAS:

15 Q. Dr. Golbeck, were these some of the interrogatory
16 responses that you considered?

17 A. Yes.

18 Q. Let's look at the part where it says "Flo app data
19 transmitted to Meta."

20 Can you read that out loud to the jury and then tell us
21 what your understanding is of this statement that Meta made?

22 A. Read this whole paragraph?

23 Q. Sure.

24 A. Sure. (as read):

25 "During the relevant time period, Flo Health

1 chose to integrate the Facebook SDK into the Flo app,
2 created app events to capture certain actions users
3 took in the Flo app, and used the SDK to subsequently
4 transmit its developer-created app events to Meta.

5 "Flo created and sent via the SDK two forms of
6 app events: Meta-defined and Meta-named standard app
7 events that captured common actions users take in an
8 app, and the Flo Health-defined and Flo Health-named
9 custom app events that measured user app interactions
10 unique to the Flo app. The Flo app sent to Meta data
11 in connection with these app events, collectively,
12 app events data."

13 **Q.** Based on your experience, what is your understanding of
14 what this paragraph means?

15 **A.** Basically, just to sort of shorten it down a little bit,
16 that Flo used the SDK and Facebook received the standard app
17 events that they get from everybody who uses that and the
18 custom app events that Flo used and -- or that Flo created, and
19 then for the rest of the answers they're going to refer to
20 these collectively as "app events data."

21 **MS. VILLEGAS:** Ilan, can you pull up Trial Exhibit
22 226A, page 11, please.

23 **BY MS. VILLEGAS:**

24 **Q.** This is another portion of the interrogatory responses
25 given by Meta that you reviewed; correct?

1 **A.** Yes.

2 **Q.** Could you please read to the jury starting on the second
3 line, "Meta is able to confirm."

4 **A.** Sure. Oh, thank you. (as read):

5 "Meta is able to confirm based on the app events
6 data available from September 29, 2019, to June 1,
7 2021, described in further detail below under the
8 heading Storage of Flo App Data, that the app events
9 data that Flo app sent to Meta included the
10 following: event name, event parameters."

11 Do you want me to read the whole list?

12 **Q.** You can stop right there. There's a lot more information
13 there; right?

14 **A.** There is.

15 **Q.** Is it your understanding that the app event data that the
16 Flo app sent to Meta included the event name and the event
17 parameter, based on this statement made by Meta?

18 **A.** That's right. They say exactly that here.

19 **Q.** Okay.

20 **MS. VILLEGAS:** Ilan, can we go back to the
21 presentation, please?

22 **BY MS. VILLEGAS:**

23 **Q.** So I'm going to ask you another question about this
24 interrogatory response that was made by Meta. We're going to
25 look at page 13 where it says "Content Delivery Optimization."

1 Can you also read that to the jury, please.

2 **A.** Sure. (as read):

3 "Content delivery optimization. During the
4 relevant time period, app events data that Meta
5 received from the Flo app were made available to be
6 aggregated along with billions of other pieces of
7 data collected from other developers or otherwise
8 collected on Meta's services and used to improve
9 through machine learning the accuracy of content
10 delivery including the delivery of advertisements
11 from advertisers besides Flo Health."

12 **Q.** And we just saw a document where Meta made the statement
13 that app events data included event names and event parameters.
14 Do you remember that just a minute ago?

15 **A.** Yes.

16 **Q.** What is your understanding of this section on content
17 delivery optimization?

18 **A.** Yeah. So this is on page 13. The quote under that that I
19 read first is on page 10.

20 And that page 10 part, they say when they say "app events
21 data," that means the standard and the custom app events.

22 And so when we're looking at this page 13-1, they say "app
23 events data," which includes both. Meta receive app events
24 data and they use that data in their machine learning
25 algorithms to improve the delivery of advertisements?

1 And this last part from advertisers besides Flo Health
2 means we're not talking about Flo advertising to their own
3 customers; we're talking about other companies who come in and
4 place ads. This data is used to improve the way their ads are
5 targeted also.

6 **MS. VILLEGAS:** Can we go to Exhibit 1271.

7 **BY MS. VILLEGAS:**

8 **Q.** So let's talk a little bit about the custom app event in
9 this case.

10 You understand what the 12 custom apps are in this case;
11 is that right?

12 **A.** I know that there's 12. I have seen this list, yeah.

13 **Q.** Based on your understanding of the documents that we just
14 looked at, the statements made by Meta, is it your
15 understanding that the custom app events, along with the
16 parameters or the answers, were received by Meta?

17 **A.** That's right.

18 **Q.** Do you also understand this to mean that Meta used the
19 custom app events at issue in this case to improve their
20 advertising business?

21 **MS. BLUNSCHI:** Objection. Foundation, scope.

22 **THE COURT:** Go ahead. You can answer.

23 **THE WITNESS:** Sorry. Could you repeat the question?

24 **BY MS. VILLEGAS:**

25 **Q.** Sure. Do you also understand, based on the evidence that

1 you reviewed, that Meta used the custom app events at issue in
2 this case to improve its advertising business?

3 A. Yes.

4 Q. And what do you base that on?

5 A. So they've said so. We've just read that in the previous
6 interrogatories. But we've seen it in the testimony that we've
7 seen in court this week too.

8 Q. When you say that Meta used the app event data in its
9 advertising business, do you mean that you can specifically
10 identify specific ads that were sent to, say, Sarah Wellman or
11 anyone else?

12 A. No.

13 Q. Why not?

14 A. So if we just stick with that really simple example that I
15 gave about going to the beach, if you make a decision -- right?
16 I give you a new set of data: It's 83 and sunny; are we going
17 to go -- which data point in that list is the one that's
18 responsible for you making that decision?

19 It's really a combination of all of them. And some of
20 them were probably more helpful than others, but all of them
21 together are the way that you learned that model.

22 And because with these neural networks, these machine
23 learning systems, they're very complicated inside, we can't
24 really take an output, like "Here's the ad that I'm going to
25 show you," and trace it back and say, "Aha, it is this specific

1 data point that's the reason that that got shown." It's a
2 combination of everything together.

3 Q. But it's your opinion that Meta received this custom app
4 data; correct?

5 A. Absolutely.

6 Q. And it's your opinion that Meta used this custom app data;
7 is that right?

8 A. Yes.

9 Q. Were you able to determine whether plaintiffs' data in the
10 form of the custom app events was used to train any of the
11 machine learning models operated by Meta?

12 A. Yes.

13 Q. And how did you determine that?

14 A. So we can see in that very complicated diagram that we
15 keep looking at that there's a training phase in there, and
16 then that's also something in Meta's internal documents.

17 Q. You were here last week when Mr. Satterfield talked about
18 the difference between using app event data for targeted
19 advertising and then training in the machine learning model.

20 Do you remember when he talked about that?

21 A. I do.

22 Q. Even if data wasn't used for targeted advertising, could
23 it still be useful to Meta?

24 A. Yes.

25 Q. How?

1 A. So if we -- just to make sure I'm understanding your
2 question -- say we're not doing advertising at all, is it still
3 useful to have that data?

4 Q. Yes.

5 A. That was the question?

6 Sure. Yeah, absolutely, because content delivery
7 optimization does include advertising, and that's how they make
8 most of their money, but it also includes just delivering
9 regular content. Here's Instagram posts that you want to look
10 at. Here's Facebook posts that you want to look at.

11 If they were really bad at that, you wouldn't spend as
12 much time on Facebook and Instagram, and the more time you
13 spend scrolling, the more ads you see. And so even if they
14 didn't use any of that data to target ads and they only used it
15 to help pick what Instagram or Facebook post to show you, if
16 they keep you engaged on the platform longer, it's still useful
17 for them because then they can show you ads with whatever data
18 they would use and make money that way.

19 Q. Dr. Golbeck, you were also here last week when Dr. Zervas
20 testified; right?

21 A. Yes.

22 Q. And you saw his presentations with the vegetables and the
23 water?

24 A. I did.

25 Q. Can you explain to the jury your thoughts on that?

1 **A.** So Dr. Zervas is right in a way that overfitting is a
2 problem that we have to worry about. He, of course, picked a
3 very simple example. I think he oversimplified when we need to
4 worry about that.

5 But he was really showing that example to make an argument
6 that this idea that more data is better isn't necessarily
7 right, and I think he's wrong about that.

8 **Q.** Can you tell the jury why?

9 **A.** So there are cases where if you have a ton of data, you
10 can end up in a place where you have overfitted. That's true.

11 But everybody knows this, and we heard that just before I
12 came on the stand. We know that this is a problem. And so
13 anybody who's building machine learning algorithms has
14 techniques that they use to avoid overfitting, because you know
15 that you can do it.

16 So it's not like, oh, we have all this data; we'd better
17 not use it. If that were the case, right -- if, say, using all
18 this SDK data from all of these apps really caused a problem,
19 Facebook could just not use it. But they are using it, and
20 they know how to manage that, and we heard that from their
21 engineers that they have things that they do to manage the
22 overfitting problem.

23 **Q.** Does Dr. Zervas' presentation on the vegetables or the
24 water change your opinions at all in this case?

25 **A.** No.

1 Q. Do you know if Meta had any systems in place during the
2 time period that we're talking about here, November 1, 2016,
3 through February 28, 2019, to prevent the specific information
4 at issue, this health-related information, from being used in
5 their advertising system?

6 A. My understanding is they did not.

7 Q. And what did you base your understanding on?

8 A. They have talked about the fact that they introduced that
9 later. They did have some -- as we've heard, some early
10 systems in place for part of -- I think part of the class
11 period that would filter out very sensitive personal
12 information that they labeled, like Social Security numbers or
13 passwords. But they really talk about it being much later when
14 they started filtering this kind of sensitive health
15 information.

16 Q. So just to be clear, during the time frame that affects
17 the women in this case, Meta did not have any systems to weed
18 out health information; correct?

19 A. That's what I understand. They haven't said anything that
20 would indicate otherwise.

21 Q. Where is the plaintiffs' data now?

22 A. From what Facebook has said, the actual data like in the
23 table is deleted.

24 Q. What about the data that made its way into the machine
25 learning model to train? Is it somewhere in there?

1 **A.** This is sort of hard to say. Facebook is -- from what I
2 understand from their documents, goes through a process of
3 trying to improve those machine learning algorithms, and they
4 retrain them.

5 So we don't know. Are there systems in place that still
6 have been trained on some of that old data that are still
7 working? They could be there, in which case that data could
8 still be influencing ad decisions that are made. Maybe all
9 those old models have been deleted and it's not -- it has never
10 been used in any system that's now active at Meta, but we don't
11 know.

12 **MS. VILLEGAS:** Can you go back to the presentation,
13 Ilan?

14 **BY MS. VILLEGAS:**

15 **Q.** So I know you also put together this example for the jury
16 to explain why training is so important.

17 Can you walk us through this?

18 **A.** Yeah. So I sort of had made this comment before that
19 training for anything like we, as humans, want to do is
20 important. The more you practice, the more you train, the
21 better you get at it.

22 But there's this question of like how much does this --
23 say if we're training machine learning, how much does this
24 particular data point actually matter? And it's really hard to
25 tease that out.

1 So I already talked through that with the table of going
2 to the beach, but I think another example that maybe makes it
3 easier to understand is if you think about -- so you're
4 practicing free throws, you're going to do lots and lots of
5 free throws over and over again. And if I ask you how much did
6 that one free throw you took on Thursday impact whether or not
7 you made that basket that you just shot, how do you answer that
8 question?

9 Maybe it was super helpful. Right? Maybe it's a free
10 throw that you had a breakthrough and changed everything and
11 suddenly you're way better at it. Maybe it's really impactful.

12 Maybe it had basically no impact. It was some -- you
13 threw it over your head just as a joke and didn't make it in
14 and it doesn't matter.

15 But it's hard to pull out one training example and say:
16 Here's how much of an effect this had on this particular
17 outcome. Did I make that basket right now that I just shot?

18 That's sort of what it's like. I mean, this is obviously
19 a very simplified example, but that's sort of what it's like if
20 you try to say: How much did this data point influence a
21 particular decision that a machine learning algorithm made?

22 **Q.** So can the lessons that the machine learning model learned
23 from plaintiffs' custom app data -- can that sort of be pulled
24 out of the model?

25 **A.** Generally, no. If you really wanted to understand how

1 much of an impact does certain data have, you could train your
2 models with the data and train your models without the data,
3 deploy them, test how well they work, and then you kind of get
4 a sense of how valuable is that data.

5 My understanding is that Meta never did that, and it's not
6 common to do that. Typically, we throw the data in and we make
7 the algorithm run as best as we can and hope that we get more
8 accurate results.

9 Q. Can you summarize your key findings for the jury just one
10 more time?

11 A. Yeah. My findings are that Flo had these custom app
12 events and standard app events, that Facebook received those
13 and they used those to train and deploy their machine learning
14 algorithms that targeted people with ads.

15 Q. And do you hold your opinion to a reasonable degree of
16 scientific certainty?

17 A. I do.

18 MS. VILLEGAS: Thank you, Dr. Golbeck.

19 THE WITNESS: Thank you.

20 THE COURT: Okay. Pass the witness.

21 CROSS-EXAMINATION

22 BY MS. BLUNSCHI:

23 Q. Good afternoon, Dr. Golbeck. I'm Melanie Blunschi for
24 Meta. It's nice to meet you.

25 A. You too.

1 Q. You've got in your binder in front of you copies of your
2 depositions and reports and one other document that we may need
3 to refer to today.

4 A. Okay.

5 Q. How much has plaintiffs' counsel paid you for the work
6 that you've done for them in this case up until this point?

7 A. I think -- I think it's about \$130,000 over four years
8 since 2022.

9 Q. And that's more or less up through today?

10 A. Yeah. I haven't billed for this month of trial, so there
11 will be -- I have no idea how many hours I've worked this
12 month.

13 Q. Now, let's turn to your -- the scope of your opinions
14 here.

15 You're not offering any opinions on Meta's intentions in
16 this case, are you?

17 A. So assuming you don't mean any legal term I don't
18 understand by "intentions" -- no. So I'm saying they intended
19 to put this data in their machine learning algorithm.

20 Q. Would you turn in your binder to the first tab, 2023
21 deposition, page 235, lines 13 through 18.

22 MS. BLUNSCHI: And, Your Honor, I'd like to ask
23 permission to play that clip.

24 THE COURT: Which ones?

25 MS. BLUNSCHI: 235 -- page 235, lines 13 through 18.

1 **THE COURT:** Okay. That's fine.

2 **MS. BLUNSCHI:** All right.

3 Mr. Johnson, could you play the clip, 235A.

4 (Video played but not reported.)

5 **BY MS. BLUNSCHI:**

6 **Q.** So you were asked that question previously, and you gave
7 that answer under oath?

8 **A.** Yeah.

9 **Q.** Okay. You also did not try to quantify the value that
10 Facebook derived or may have derived from its use of machine
11 learning, did you?

12 **A.** That's correct. I did not.

13 **Q.** And you're not offering any opinion that Facebook gained
14 any particular dollar amount of revenue through the use of data
15 that's at issue in this case, are you?

16 **A.** That's right. I'm not offering that opinion.

17 **Q.** Okay. In fact, it's not even possible to determine after
18 the fact the value or significance of any given piece of
19 Flo app data that may have gone into Facebook's machine
20 learning systems; is that right?

21 **A.** I wouldn't know. I certainly wouldn't be a person who
22 could offer an expert opinion on that.

23 **Q.** And you'd agree it's not feasible to make an
24 after-the-fact determination of whether the Flo app resulted in
25 any particular ads being delivered to any particular users; is

1 that right?

2 **A.** I'm sorry. Could you just say that question again?

3 **Q.** Sorry. That was a lot of words.

4 And sorry to Ruth for that too.

5 You'd agree that it's not feasible to make an
6 after-the-fact determination of whether the Flo app data
7 resulted in any particular ads being delivered to users; is
8 that right?

9 **A.** Yeah, I think that's right.

10 **Q.** Okay. And you couldn't say how much weight, if any,
11 Meta's machine learning system put on data that Flo may have
12 shared with Facebook; is that right?

13 **A.** I -- I certainly couldn't with -- with the data that was
14 made available to me in this case. Could there be something
15 internal to Meta in their models that might tell you the
16 weight? Maybe, but I didn't see anything like that.

17 **Q.** But in this case, you're not offering any opinion about
18 how much weight, if any, the Flo app data was given in the
19 machine learning systems; is that right?

20 **A.** Yeah, I understand. No, I'm not offering any opinion
21 about that.

22 **Q.** And, in fact, it's possible that Meta's machine learning
23 systems gave Flo app data a weight of 0; is that fair?

24 **A.** That's fair, yeah.

25 **Q.** Perhaps due to some of the protections against overfitting

1 or other aspects of the system?

2 **A.** I would -- before I can agree with you on that, I would
3 really need to see like what is happening internally.

4 Theoretically, one could not use -- I don't know. I don't -- I
5 don't think you've quite got it right with that overfitting
6 thing, but I will agree that it's possible that it could have
7 ended up with a weight of 0.

8 **Q.** All right.

9 And you haven't analyzed how Meta's models may have
10 impacted delivery of any advertisement to particular users; is
11 that right?

12 **A.** That's correct.

13 **Q.** Now, before I ask the next few questions, I want to make
14 sure we agree on a definition of semantic meaning. I think
15 that's a phrase you've used in your reports.

16 Would you agree that to know the semantic meaning of a
17 piece of data is to know what the words or symbols in that data
18 mean?

19 **A.** We can agree that that's the definition.

20 **Q.** Thank you.

21 So, for example, to know the semantic meaning of the word
22 "period," you'd need to know whether it's referring to a period
23 of time, a menstrual period, punctuation, or just happens to be
24 six random letters that correspond to a human word?

25 Is that fair to say?

1 **A.** Are you talking like from the human perspective of
2 understanding the semantic meaning?

3 **Q.** Any perspective of understanding the semantic meaning.
4 Like what the words refer to.

5 **A.** Yeah, sure. So for like a human to understand that, it's
6 an ambiguous term; right? So to understand if something had
7 had that label "period" on it, then, yeah, we would probably
8 want what we would call disambiguation to understand the --
9 like which way you're using the term.

10 **Q.** And unlike our -- unlike us simple humans, machine
11 learning systems do not need to understand the semantic meaning
12 of the words or symbols in data; is that right?

13 **A.** Yeah, typically they don't need to understand it.

14 **Q.** But human semantic understanding of "period" --
15 punctuation, menstrual period, things like that -- that's not
16 relevant to how machine learning uses that data; is that right?

17 **A.** Again, typically, I think that's right. I mean, I have
18 built machine learning systems that like analyze semantic
19 meaning as -- we would call this like feature engineering.
20 It's like the beginning phase when I'm determining what's the
21 data that's going to go into those training phases.

22 I just don't want to be super doctrinal that like never is
23 semantic meaning considered. But like within the neural
24 network that I gave the diagram of, typically in that you're
25 working with numeric values, and there's not an analysis step

1 in there to like find the definition of the terms.

2 Q. Sure. So whether the data is composed of English words or
3 random strings of letters and numbers, that doesn't matter to
4 the machine learning model; is that right?

5 A. For the kind of system we're talking about here, I think
6 that's right, yes.

7 Q. For example, I think you've previously explained that a
8 dataset containing a term like "sex" is no more useful to a
9 machine learning system than arbitrary sets of letters and
10 numbers; is that fair?

11 A. Yeah, that's fair.

12 Q. And your opinions in this case about Meta's use of Flo app
13 data would be the same whether the custom app event information
14 had the titles it did or whether it was purely random strings
15 of letters and numbers; is that fair?

16 A. Yes, my opinions would be the same.

17 Q. In your work in this case -- well, all that you reviewed
18 here -- you didn't any evidence that Facebook utilized a
19 machine learning system that would use the semantic meaning of
20 the app event titles; is that right?

21 A. Sorry. Can you just restate the beginning part of that?

22 Q. Yeah, yeah, absolutely.

23 You haven't seen any evidence up until this point that
24 Facebook utilized a machine learning system that would use the
25 semantic meaning of the app event titles; is that right?

1 **A.** That's right. I haven't seen any evidence that they're
2 doing that.

3 **Q.** And you personally do not believe that there are some
4 humans at Facebook analyzing the names of the billions of
5 points of data -- of app data that Facebook receives; is that
6 right?

7 **A.** I -- I don't believe there is a team of humans.

8 **Q.** Analyzing the data?

9 **A.** There is definitely a team of humans, that's right.

10 But -- or reading the names of things.

11 I guess it's possible. I -- I mean, that wasn't part of
12 my analysis, but I'd be surprised if they were, yeah.

13 **Q.** And you haven't seen any evidence suggesting that Flo
14 shared an app event description key with Facebook outside of
15 this litigation; is that right?

16 **A.** That's right. I haven't seen evidence of that.

17 **MS. BLUNSCHI:** Thank you for your time, Dr. Golbeck.

18 **THE WITNESS:** Thank you.

19 **THE COURT:** Okay. Any brief redirect?

20 **MR. SADUN:** Your Honor, Flo Health has some.

21 **THE COURT:** Okay.

22 **CROSS-EXAMINATION**

23 **BY MR. SADUN:**

24 **Q.** Nice to see you again, Dr. Golbeck.

25 **A.** You too.

PROCEEDINGS

1 Q. You're not offering an opinion on Flo's conduct itself,
2 correct?

3 A. I'm not. My opinions are just about Facebook.

4 MR. SADUN: Thank you.

5 THE WITNESS: Sure.

6 THE COURT: Okay. Any brief redirect?

7 MS. VILLEGAS: Very briefly, Your Honor.

8 REDIRECT EXAMINATION

9 BY MS. VILLEGAS:

10 Q. Dr. Golbeck, is the fact that a machine translates the
11 Flo app data into code machines understand -- does that change
12 that women entered health data into the Flo Health app that
13 Meta recorded and used?

14 MS. BLUNSCHI: Beyond the scope. This expert was not
15 qualified on what health data is.

16 THE COURT: Go ahead. You can answer. Overruled.

17 THE WITNESS: My opinion is, no, it does not change
18 the nature of that data.

19 MS. VILLEGAS: Thank you.

20 THE WITNESS: Thank you.

21 THE COURT: Okay. You may step down. Careful on the
22 way out.

23 Plaintiff?

24 THE WITNESS: Thank you.

25 (Witness excused.)

PROCEEDINGS

1 **MR. CANTY:** Your Honor, with respect to the deposition
2 designation we played before, plaintiffs seek to move into
3 evidence Trial Exhibit 488. I believe that's on stipulation.

4 **THE COURT:** All right. Any objection?

5 **MR. SADUN:** No objection.

6 **THE COURT:** Okay. That's admitted.

7 (Trial Exhibit 488 received in evidence.)

8 **MR. CANTY:** Your Honor, the plaintiffs rest.

9 **THE COURT:** Okay. Members of the jury, we're going to
10 break today right now. See you tomorrow morning.

11 Now, start planning tomorrow -- this is less likely, but I
12 can't rule it out -- start planning 9:00 to 5:00 tomorrow, as I
13 mentioned last week, definitely for Friday and into next week
14 until a verdict is reached. Okay?

15 So I'll see you in the morning.

16 Oh, yes, I forgot. Don't forget our closing admonition.
17 We talked about this every day. I'm going to repeat it to you
18 again.

19 You're going to clear your mind and do anything and
20 everything other than think about this case. You're not going
21 to talk to anyone. You're going to reflect. You're not going
22 to decide any issues. You're not going to do any research.
23 You're not going to do any investigation. And you're going to
24 attend to life, and I'll see you tomorrow morning.

25 **THE COURTROOM DEPUTY:** All rise.

RULE 50 MOTION

(The jury leaves the courtroom.)

(Proceedings were heard out of the presence of the jury.)

THE COURT: All right. I'll be back in a few minutes.

THE COURTROOM DEPUTY: You may be seated.

(Recess taken at 2:15 p.m.)

(Proceedings resumed at 2:33 p.m.)

(Proceedings were heard out of the presence of the jury.)

THE COURTROOM DEPUTY: Remain seated. Come to order.

THE COURT: Okay.

THE COURTROOM DEPUTY: We're back on the record in Civil 21-757, Frasco versus Flo Health.

THE COURT: All right. Plaintiffs have rested.

Are there any Rule 50 motions from the defendants?

RULE 50 MOTION

MS. SHARTON: Yes, Your Honor. Flo Health moves for judgment on -- as a matter of law on plaintiffs' CMIA claim, and this is based on -- I know you've ruled on this a couple of times in the past, summary judgment and class cert.

The evidence has come in and there's also newly discovered legislative history that the Court has not seen, presumably, previously, at least it hasn't been submitted to you.

And I'd like an opportunity to move verbally, and if Your Honor so would like, I could -- we could file a brief on it.

THE COURT: No briefs, but all right. So you move to

RULE 50 MOTION

1 dismiss CMIA for lack of evidence on which -- sufficient for a
2 jury to return a reasonable verdict?

3 **MS. SHARTON:** Correct, yes.

4 **THE COURT:** Okay. Plaintiff?

5 **MR. CANTY:** Your Honor, without going through all of
6 the evidence, we've made out each and every element. If you
7 accept the evidence in the light most favorable to the
8 plaintiffs, we believe we've made out each and every element of
9 the CMIA claim and believe that this is a question for the
10 jury.

11 (Reporter interruption for clarity of the record.)

12 **MR. CANTY:** My apologies again.

13 **THE COURT:** Okay. Okay. I have to say I have
14 listened quite attentively in general and specifically with an
15 eye towards the claims, and I have some doubts about CMIA.
16 I'll tell you what they are.

17 I have been reading the definitions, and in Civil Code
18 Section 56.05, I have not seen any evidence that Flo fits the
19 definition of provider of healthcare, that the Flo users fit
20 the definition of patient, or that medical information as
21 defined in Section 56.05, which is premised in substantial
22 measure on those two others definitions, the patient and
23 provider of healthcare, is an issue here.

24 So why don't you help me with that.

25 **MR. CANTY:** Yes, Your Honor. With respect to the

RULE 50 MOTION

1 provider of healthcare, under 56.06(b) of the CMIA, a provider
2 of healthcare includes any business that offers software or
3 hardware to consumers, including a mobile application or other
4 related device that is designed to maintain medical information
5 in order to make that information available to the individual.

6 **THE COURT:** That's 56.06. I'm talking about .05. So
7 I don't see how you fit those definitions. I'm talking about
8 the definitions.

9 **MR. CANTY:** Yes. My understanding, Your Honor, is
10 under the CMIA that that is the definition of a provider of
11 healthcare.

12 **THE COURT:** Well, you know, healthcare provider
13 typically means someone who is a treating physician or a
14 doctor. There's definition of that also.

15 Let's see. Where is that?

16 Licensed healthcare professional, which is Subsection H.
17 And Subsection J, which is the medical information also refers
18 to provider of healthcare.

19 And here it. It's M as in Mary: Provider of healthcare
20 means any person licensed or certified -- and so on.

21 Okay. I also don't see how the definition of a patient
22 for purposes of medical information, so Subsection J of 56.05
23 defines medical information with respect to a patient's medical
24 history.

25 Subsection K defines a patient as any natural person who

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1 received healthcare services from a provider of healthcare.

2 And then Subsection M defines provider of healthcare to
3 mean any person licensed or certified.

4 No evidence about any of those things. I don't think you
5 can meet any of those elements.

6 Now, look, let me just tell you. I don't typically grant
7 Rule 50 motions. I think it's usually better to let the jury
8 decide. There are rare occasions, and I think this is one of
9 them, where it's going to potentially be confusing and highly
10 unproductive to let a claim for which I see virtually no
11 evidence -- in fact, probably zero evidence -- to go forward.

12 So tell me how -- what evidence -- what evidence is
13 established, for example, that the users are patients within
14 the meaning of 56.05?

15 **MR. CANTY:** Well, certainly the five plaintiffs that
16 testified here in trial, Your Honor, indicated that they
17 provided private, sensitive healthcare information for the
18 purpose of getting health services. In fact, telling them when
19 they -- was best -- the best time for them to get pregnant, for
20 example, Sarah Wellman.

21 Yes, there are traditional definitions of "healthcare
22 provider" and "patient," but they certainly believed that they
23 were getting health services from the Flo app when they entered
24 that information. And according to the definition under 56.06
25 with respect to "healthcare provider," it includes these types

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1 of apps that collect, store, and maintain this information so
2 that the patient can go back and look at that information in
3 the future and gain essentially health services from the site.

4 Here, one of the allegations is under the
5 SESSION_CYCLE_FIRST_DAY, the information they got back was when
6 was the best time for you to get pregnant. Where are you in
7 your menstrual cycle. That's healthcare. They were a
8 healthcare provider providing specific healthcare information
9 to these women.

10 And with respect to the definition under the CMIA, again,
11 I'll read it again. It describes any business that offers
12 software or hardware to consumers, including a mobile
13 application. That's exactly what Flo Health is.

14 **THE COURT:** But I -- look, when you read the
15 statute -- and I'm going to foreshadow the -- some of the jury
16 instructions here.

17 All of this is read with commonsense ordinary meaning.
18 All of it. Okay?

19 So, for example, you're going to see that I'm denying most
20 of those requests for interpretation of plain language that
21 some of you, I think mainly the defendants, raised in
22 connection with the jury instructions.

23 We don't do that. We're talking about consumers.
24 Consumers read things in a plain and ordinary manner.

25 So -- but that applies to you too on the plaintiffs' side,

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1 and that is when you look at 56.06 and 56.05, it seems plain as
2 day to me what the legislature was addressing as something that
3 I, and perhaps you, use in ordinary life, which is when I go to
4 my doctor, I now have this electronic file that I can access.
5 It's called MyChart. It just seems to be the generic name that
6 everybody uses. I have it for several healthcare providers.
7 It all says, you know, Dr. X MyChart or UCSF MyChart, Stanford
8 MyChart.

9 So that's what they're talking about. I go in there. My
10 test results are there. My notes from my doctor are there. I
11 send my doctor e-mails saying my back hurts. You know, he
12 gives me some diagnoses. I get a prescription. It's all my
13 thing, my physician.

14 That's what 56.06 and 56.05 are intended to address, and I
15 think those definitions that I highlighted -- "patients,"
16 "medical information," and "provider of healthcare services"
17 make that pretty plain.

18 **MR. CANTY:** Well, Your Honor --

19 **THE COURT:** I'd be happy to have a -- but there's just
20 no evidence that I've heard that a reasonable jury could make a
21 finding in your favor on.

22 **MR. CANTY:** I respectfully disagree, Your Honor.

23 **THE COURT:** I know you do. I want you to tell me why.

24 **MR. CANTY:** Sure. I think that -- you know, we live
25 in 2025, where individuals get healthcare from a myriad of

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1 sources. And these women went to the Flo Health app, who holds
2 themselves out as a healthcare app, to get healthcare services.
3 They talk about how this is a free service for a lot of women.
4 They may not have the opportunity to go see a doctor.

5 I understand the example you gave, Your Honor, with
6 respect to a portal, and certainly that covers the definition,
7 but I don't think it is exclusive to a portal that has every
8 single test, chart, analysis, test result. It also applies to
9 mobile apps as the statute intended that collects sensitive
10 healthcare data. And these women talked about --

11 **THE COURT:** MyChart is a mobile app.

12 **MR. CANTY:** Understood.

13 **THE COURT:** That's what I'm using.

14 **MR. CANTY:** As is Flo Health.

15 **THE COURT:** I understand. But, you know, yes, it is
16 true -- and look, we're in Northern California. Okay? I'm
17 basically a native of Northern California. People here consult
18 shamans, tarot cards, soothsayers, obscure religious traditions
19 for healthcare. They're not within the meaning of the statute.
20 That's what matters.

21 You can solicit healthcare from anyone, but you do have to
22 provide it to be liable under CMIA within the definition of
23 what the legislature says.

24 **MR. CANTY:** I don't disagree, and we're not talking
25 about a tarot card reader app. We're talking about an app that

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1 provides -- that touts itself as a healthcare provider and
2 provides specific health information to women, not --

3 More importantly, they store sensitive healthcare
4 information of these women, and they all testified to that.
5 They put in when their cycle began, when it ended, how long
6 their period is, how long their cycle usually lasts. They went
7 back and they put in sensitive data. And I know it's not part
8 of the case, but I think it goes to whether or not it's a
9 healthcare app. Whether they had vaginal discharge, what kind
10 of symptoms they were having while they were on their period to
11 seek advice. There was advice that they could get based on
12 that information.

13 **THE COURT:** Let me just jump in.

14 Your invasion of privacy claim and everything else is
15 going to go forward, okay, including CIPA. This is the only
16 one I'm very likely not to let you go forward on.

17 So I agree with you. Those are all maybe private things
18 that the jury will be called upon to decide whether that was
19 invasive or not and all -- for all those other purposes.

20 But for this particular one, you do have to operate within
21 the plain language of the statute, and I just don't think
22 you're there.

23 Anyway, anything, Flo, you'd like to add on that?

24 **MS. SHARTON:** No. I think Your Honor is spot on, and,
25 in fact, we don't even have to guess. In 2013 after drafting

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1 Section 56.06(b) and before its passage, the drafters stated,
2 quote (as read):

3 "The intent of the CMIA was to protect medical
4 information that originated with medical
5 professionals... This is why CMI defines 'medical
6 information' to only include information in the
7 possession of or derived from healthcare service
8 providers. CMIA was not intended to protect all
9 medical information broadly construed that is created
10 by the individual."

11 This came up -- and I have copies of that legislative
12 history. This came up because while we may live in 2025, the
13 statute we should be looking at is the one that was in effect
14 from 2016 to 2019.

15 **THE COURT:** I agree from the 2016 perspective.

16 **MS. SHARTON:** Exactly right, Your Honor. And what --
17 the reason for that legislative history is when the law was
18 going to be passed, app developers who had like step trackers,
19 things like that, wanted to make crystal clear that things that
20 users input into an app wasn't going to be covered by the
21 statute, and they went back and that was clarified. And that's
22 what Flo is: It's all input.

23 I would also add that all the plaintiffs -- I asked them
24 and they said "Flo was not my healthcare provider." That
25 testimony is in the record. And I didn't see anything that

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1 would support.

2 And Your Honor's reading of the definitions we -- it's
3 spot on. They're talking about like the MyCharts the MyLabs,
4 insurance platforms that actually have EHR, not a Flo -- not
5 the Flo app.

6 **THE COURT:** Okay.

7 **MR. CANTY:** Your Honor, briefly.

8 **THE COURT:** Final thoughts, yes.

9 **MR. CANTY:** With respect to that, the question was:
10 Are they your healthcare provider?

11 I think the witnesses understood that to mean the primary
12 healthcare provider for those individuals.

13 I hear Your Honor. I believe this is a very important
14 issue.

15 This is the one issue I think having the opportunity to
16 submit a brief to the Court, a brief -- brief brief -- on the
17 issue is important. We've put the case in over the past week
18 and a half. We have a fundamental disagreement as to whether
19 or not certain portions of the statute apply, and we'd like to
20 be heard. I think it's important that --

21 **THE COURT:** I've got to get the jury instructions
22 done.

23 There's nothing you're going to tell me that's -- I've
24 heard all the evidence. It's not arguing the statute. It's
25 arguing what the evidence is in the case. Okay?

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1 The statute is plain as day. I have no ambiguity in my
2 mind about what those definitions require under Section 56.05.

3 The problem you have, and it is in my view an
4 insurmountable problem, is that you have no evidence to meet
5 any of those definitions on patients, on provider of
6 healthcare, and on medical information, which is premised on
7 those two prior definitions.

8 So if you want to submit five pages by 9:00 a.m. tomorrow
9 morning, that's fine, but don't bother if it's not based on
10 actual evidence that the jury will use to make a reasoned and
11 reasonable decision in your favor. I just don't see it being
12 there.

13 **MR. CANTY:** Understood, Your Honor.

14 **THE COURT:** I fully expect we're going to be closing
15 on Friday, so I need to get the jury instructions done, and
16 I -- if you want to say something, that's fine, but no more
17 than five pages saying: Here is the evidence that satisfies
18 all the requirements of 56.05 and 56.06.

19 **MR. CANTY:** Your Honor, is it the plaintiffs'
20 understanding that you will not be charging the jury that a
21 provider of healthcare includes any business that offers --

22 **THE COURT:** The CMIA will be dismissed. It's not
23 going to the jury.

24 **MR. CANTY:** I understand. But, for example, if we
25 were to convince you, is it our understanding that this is the

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1 definition of the "provider of healthcare" that will go to the
2 jury?

3 **THE COURT:** .05 and .06 will be read together, but .05
4 cannot just be blanked out. It is a definition of "provider of
5 healthcare services." I know you prefer the .06 version, which
6 you think is broader, but they both are overlapping and
7 conjoined and they need to be read together in a way that
8 harmonizes, as you do in statutory interpretation, both
9 sections of the statute. And -- but don't even bother -- don't
10 bother with that.

11 **MR. CANTY:** I will focus on the evidence.

12 **THE COURT:** You are stumbling on the starting block,
13 which is there's no evidence in the case that would support a
14 reasoned and reasonable verdict by a jury on the CMIA. That's
15 where you have a problem. It's not the language of the
16 statute. It's not a legal issue; it's an evidentiary issue. I
17 want to be plain as day: It's an evidentiary issue.

18 **MR. CANTY:** Understood, and we will scour the
19 evidentiary --

20 **THE COURT:** Five pages. That's it.

21 **MR. CANTY:** Yes, Your Honor.

22 **THE COURT:** There really shouldn't be any more than:
23 See this document, see this testimony -- and, you know, do it
24 like that.

25 **MR. CANTY:** Yes, Your Honor.

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1 **THE COURT:** Make my life easier by anything you cite,
2 you attach to the back so I don't have to flop around through
3 the record.

4 **MR. CANTY:** Yes, Your Honor.

5 **THE COURT:** Do not file a response unless I call for
6 it.

7 **MS. SHARTON:** Understood. Thank you.

8 **THE COURT:** All right. Is that it?

9 **MR. CLUBOK:** Your Honor, two --

10 **THE COURT:** Yes.

11 **MR. CLUBOK:** Your Honor, Andrew Clubok on behalf of
12 Meta.

13 Two orders of business. One, we would -- we would bring
14 our 50(a) motion at the close of all evidence if time is going
15 to permit that.

16 **THE COURT:** That's fine. If you want to do that,
17 that's fine.

18 **MR. CLUBOK:** Thank you, Your Honor.

19 The other thing is in terms of the jury instructions, will
20 there be a charging conference or are you --

21 **THE COURT:** Yes. We'll probably do that tomorrow
22 afternoon.

23 **MR. CLUBOK:** Terrific, because we may have some
24 additional things based on the way the evidence is coming in as
25 well.

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1 **THE COURT:** Be prepared to close on Friday. Okay?

2 **MR. CLUBOK:** All right. Thank you, Your Honor.

3 **THE COURT:** Okay. See you then.

4 **MS. McCLOSKEY:** Your Honor, we'd request leave to file
5 an extremely short brief, shorter than five pages, to follow up
6 on two objections that I made during Mr. Satterfield's
7 testimony.

8 **THE COURT:** Didn't you try this this morning? I
9 already told you there are no retroactive objections. Either
10 do it when time is there or it's gone.

11 So no. Permission denied.

12 See you in the morning.

13 **THE COURTROOM DEPUTY:** All rise. Court is in recess.

14 (Proceedings adjourned at 2:50 p.m.)

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CERTIFICATE OF REPORTER

I certify that the foregoing is a correct transcript
from the record of proceedings in the above-entitled matter.

DATE: Wednesday, July 30, 2025

A handwritten signature in blue ink, reading "Ruth Levine Ekhaus", followed by a horizontal line.

Ruth Levine Ekhaus, RMR, RDR, FCRR, CCG, CSR No. 12219
Official Reporter, U.S. District Court